DISORDERS

OF

THE NERVOUS SYSTEM

IN

CHILDHOOD.

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ON SOME DISORDERS

OF

THE NERVOUS SYSTEM IN CHILDHOOD:

BEING THE

LUMLEIAN LECTURES

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON

IN

MARCH 1871

BY

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FELLOW AND SENIOR CENSOR OF THE COLLEGE:

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1871.

TO

SIR JAMES ALDERSON, KNT. M.D. F.R.S.

LATE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS,

WHO DESIGNATED ME TO THE OFFICE OF

LUMLEIAN LECTURER:

AND TO THE

FELLOWS OF THE COLLEGE,

SOME MY TEACHERS, OTHERS MY COLLEAGUES, ALL MY FRIENDS,

WHO HONOURED ME WITH THEIR PRESENCE AND

REWARDED ME BY THEIR APPROBATION,

I GRATEFULLY AND AFFECTIONATELY DEDICATE THESE PAGES.

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OF

THE NERVOUS SYSTEM

IN

CHILDHOOD.

LECTURE I.

ON NEURALGIA AND EPILEPSY.

Introductory.—History of foundation of Lumleian Lectures.—Sketch of Dr. Caldwell and Lord Lumley.—Harvey one of the Lumleian lecturers.—Difficulty in choice of subject.—Circumstances which limit choice.—Reasons for selecting diseases of early life, and for choosing disorders of nervous system, with reference to—1st. Sensation; 2nd. Motion; 3rd. Power of Speech; 4th. Mental and Moral powers.—1st. To Sensation: rarity of pure neuralgia; risks of error in cases of brain disease; of disease of hip-joint.—2nd. To Motion: import of convulsions; epilepsy, what is meant by it; relation of convulsions in early infancy to epilepsy in childhood; frequency of attacks more important than their severity; influence of epilepsy on moral character most striking in childhood; circumstances which govern prognosis; causes of epilepsy; its treatment; influence of specifics; of bromide of potass; importance of moral treatment; of mental occupation.—Treatment and cure of disease imply something higher than mere administration of drugs.—Conclusion.

MR. PRESIDENT,—GENTLEMEN,—Two of the faults which this nineteenth century is sometimes charged with are a want of reverence

and a want of gratitude. We inherit, it is said, the fruit of their labours who have gone before us: we do not cherish their memories, nor return them thanks.

And so, while we feel the honour done to us by our cotemporaries in investing us with an office such as that which, by your too partial judgment, I hold to day, and are alive to the responsibility of fulfilling its duties well, we can scarcely feel aright either the honour or the responsibility, unless we for a moment ask who they were that instituted the office long centuries ago, and who did it not so much that their own names should be held in remembrance, as that every year something might by it be added to the common treasury of knowledge.

In the case of the Lumleian Lectures, the answer to this question is of no common interest; for though they perpetuate the name of one man only, two concurred in their foundation, and both of them men who in a remarkable time were themselves most remarkable. It was in the year 1572, when Shakespeare and Bacon were boys, when Raleigh was serving his first apprenticeship to arms with the troops

of the heroic queen of Navarre; when the struggle was at its fiercest between the old religion and the new, and its result seemed doubtful to Europe, struck aghast by the massacre of St. Bartholomew; when, in England, the Duke of Norfolk had just expiated on the scaffold the weakness which had brought him within the reach of her spells whose fascinations served but to ruin all who yielded to their power; when the throne of this country was tottering, and dark clouds overhung the future, that Richard Caldwell, Doctor of Medicine, and some time one of the senior students of Christchurch, and John, Lord Lumley, executed a joint deed laying a perpetual rentcharge on their lands for the foundation of these Lectures.

A strange time of commotion this in which to labour at a work of peace; and it would imply on the part of one, at least, of the two, that calm trust in an overruling power which well accords with the 'doctrina, gravitas, probitas,' said by his cotemporaries to have been Caldwell's special characteristics. Lumley's share in the transaction we may, I think, look upon as probably an act of friendship sprung from

similarity of tastes and literary pursuits, which bound together the sober Oxford scholar and the busy, intriguing, magnificent, courtier.

One would gladly have known more of Caldwell; but there is little to tell of him beyond the fact that he was examined, approved, and admitted into this college, and appointed Censor all in one day, and that in less than six weeks afterwards he was chosen one of the Elects.

He was of middle age when he joined the college, and his benefaction to it was given when in failing health; for in the same year we find that he and Caius (with whose silver rod you, Sir, have ruled us, as it imports, 'mildly and with clemency') were specially excused on that score from attendance at the college meetings, and two years afterwards he died.

Lord Lumley survived his friend nearly forty years, not dying till 1609. He had seen various fortunes. Born of most noble lineage, but the son of an attainted rebel; restored in blood and to his peerage by Edward VI.; high in favour in the reign of Queen Mary—nor much less so, save for one brief interval, in that of her successor. He married a daughter of the Earl of Arundel, who was one of the most learned women

and best Greek scholars of her day; and the monument to his father-in-law at Arundel attests alike his own taste for splendour and for learning. His favour with Queen Mary, his connection with the Howards, his share in the intrigues for rescuing the Scottish queen and placing her on the English throne, leave no doubt of his sympathy with the old faith. A short experience of adversity taught him, however, a safer, though less noble, course; and we blush to find him on the commission for the trial of her whom he had pledged his knightly word to serve, and to meet with his name in connection with some of Elizabeth's worst judicial tyrannies.

But time, which chastens and purifies all but craven souls, so wrought on him that when at length he died, the character recorded of him by Camden was, 'that he was a person of entire virtue, integrity and innocence; and in his old age a complete pattern of true nobility.'

I confess, to my mind, it is a pleasure to find that the man in the lowlier state was the nobler, truer man, and that our gratitude is due to the scholar and physician who, three centuries ago, sat in your chair, Sir, rather than to the noble-

man whose name alone appears as that of our benefactor.

But be this as it may, I think there are but few of us who would not hesitate to give these Lectures,—who would not wish to have long time for preparation, or would not cast about anxiously for something most worthy to be listened to, if either Richard Caldwell or John Lumley were to be of the audience. And, Sir, behind them rises a far greater figure than either, for in these Lumleian Lectures William Harvey first publicly taught his doctrine of the circulation of the blood, and did for the art of Medicine what Newton did afterwards for the science of Astronomy.

Pardon me, Mr. President and Gentlemen, that I have detained you with this preface; but to hold the post that Harvey held,—to teach, as it were, from the same place, invested with the same authority, and to feel that one has no great truth to unfold, no large addition to make to the common store of knowledge, may well teach one humility, and make one throw oneself, as I do, most earnestly, on your indulgence.

I have listened, during the past few weeks, in this theatre, with great interest, much profit,

and sincere admiration, to the Gulstonian* and Croonian† Lecturers; but I have failed to gather from them any encouragement for myself. They seem to have been admitted to nature's arcana—esoteric disciples they, to whom she has revealed her most hidden mysteries; and with an almost despairing feeling I can but cry, 'Ars longa,' and regret unavailingly the shadow gone down so far upon the dial.

I have looked, too, with much anxiety at the lists of subjects which have at different times been selected by my predecessors in this office, and find that for the most part they are great subjects, such as concern the philosophy of Medicine, such as deal with the large principles that regulate our opinions and control our practice. But I cannot hope to follow into those regions; for I have, indeed, been made to a great degree a specialist against my will, and have been compelled to limit my endeavours to the culture of but a very small part of the field of Medicine, and must, therefore, choose from it such fruits as I can gather there, and

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† Dr. Parkes, F.R.S., Professor of Hygiene in the Army Medical School, Netley.

plead (an excuse which was allowed of old) the poverty of the bringer for the smallness of his offering.

My life has been passed very much among the young. I have lived with children; their ways, their wants, their sufferings are more familiar to me than those of grown-up people; and I prefer, therefore, to take some of their ailments as the subject of these Lectures.

It is on all hands recognised that the diseases of early life differ in many important respects from those of the adult; that not the frailness of the machinery, nor the imperfect powers possessed by children of explaining their sufferings, nor the smaller doses of the remedies suited to their tender years, are the only points which call for special attention; but that also diseases themselves run a different course, symptoms have a different import, the probabilities of death or of recovery are determined by different considerations in the child from those which govern our conclusions in the adult.

I will not, however, occupy your time with matters so trite as these; but, selecting one large class of disorders, will do my best to

point out some of their special peculiarities in infancy and childhood.

For this purpose I have selected the disorders of the Nervous System; both because they are the most frequent and the most fatal, as also because their peculiarities are more remarkable than those of any other class of diseases: and this, I imagine, owing to the circumstance that the nervous system is more unformed, its functions more rudimentary, its condition one of change and development, the like of which does not take place in the organs of respiration, circulation, or even of digestion.

In the case of the respiratory, circulatory, and digestive systems the peculiarities of early life show themselves rather in the course of actual organic disease than in mere functional disorder. Thus, for instance, valvular affection of the heart is excited by slighter causes, and becomes more speedily associated with hypertrophy and dilatation in the child than in the adult; bronchitis is more apt to be followed by pulmonary collapse; tubercle of the lung is more generally diffused, and large cavities are rarer; or, again, disease of the mesenteric glands, and tubercular deposit in the peritoneum, are more

frequent than in the adult; but in the main the functional disorders of these different sets of organs manifest themselves by much the same symptoms at all ages. On the other hand, however, those disorders of the nervous system which leave no trace in the body such as the anatomist can discover, are yet so peculiar in many of their manifestations as to deserve a special notice.

I propose to consider them, not in accordance with any scientific arrangement—under which, indeed, they do not seem to me to admit of easy classification—but to examine in succession

The peculiarities of disorders of the nervous system in early life, with reference

1. To sensation,
2. To motion,
3. To the power of speech,
4. To the mental and moral powers.

In the grown person there is a large class of ailments which consist of simple pain. We call the disorder neuralgia—nerve pain—and mean thereby that such pain is independent of local disease. It is produced by the influence of malaria, it follows on loss of blood, or is asso-

ciated with various altered states of the circulating fluid; or, in other cases, it is impossible to determine the exact cause to which it is due. The difficulties of its cure render it one of the opprobria of Medicine, but it does not tend in any way to shorten life, and our patients at last find a sort of dreary satisfaction in the knowledge that the malady which renders existence so bitter is yet *only* neuralgia.

In infancy and childhood, however, pain referred to any part signifies almost without exception that disease of some sort or other is going on there, or near at hand. The tears so profusely shed do not prove that pain is the lot of the infant more than of the grown person; but at one time cries are the only, as they long continue the most expressive, language. Hunger, sleeplessness, fatigue, discomfort of any sort is expressed by cries; while the character of the cry goes far towards helping us to determine the nature of the suffering. But I have never in infancy known any instance of pain—severe, obstinate, recurrent—for which, sooner or later, a distinct local cause was not found; and even in later childhood the rarity of real neuralgia is extreme.

There are two classes of cases in which it is of especial importance to bear in mind this caution: the one those cases in which pain is referred to the head; the other those in which it is situate in one of the lower limbs. In the former case the pain is almost invariably symptomatic of organic disease of the brain: in the latter with almost equal certainty of hip-joint disease. And yet I have often seen it regarded for many days as purely neuralgic. The mistake is the more likely to be committed when pain is referred to the head, owing to the undoubted rarity of intense pain as a symptom of acute disease of the brain, while the severe suffering which sometimes attends cerebral tubercle is almost always associated with some positive symptom or other of organic mischief. But now and then I have seen cases where, after some previous failure of health, and some trivial head discomfort such as scarcely attracted attention, pain has come on, so sudden, so violent as to throw all other symptoms completely into the background, so distinctly and almost completely intermittent, and for a time, even under the influence of quinine in large doses, as to mislead even the most wary. And yet time has

undeceived one as to the nature of the case; the intermissions have become less complete, and of shorter duration; the influence of quinine has passed away; the intervals between the paroxysms of pain have no longer been times of cheerfulness, but of indifference to objects around, till the indifference has deepened into stupor, and suffering has abated just in proportion as consciousness has been lessened.

It is most difficult to lay down rules for the avoidance of error, for while it is undoubtedly true that neuralgia may follow either on some previous ill-defined feverish attack, or may take place during convalescence from typhoid fever, it is just in such conditions that real disease of the brain oftenest comes on; and the latter is of far more frequent occurrence than the former. It may, however, be of some use to bear in mind that neuralgic pain is localised in some part of the head; that, while it is very intense and accompanied with excessive intolerance of light and sound, it is also often attended with weeping, and the importance of tears as disproving the existence of real inflammatory disease either in the head or chest, first dwelt on by Trousseau, cannot be overrated. The

intervals between the paroxysms are times not only of perfect ease, but of cheerfulness; sickness is absent, the power of taking food is not lost, and sleep, if not interrupted by pain, is quiet and refreshing. Moreover, there is no dizziness, though there may be heat of head; the pulse is unusually quick and feeble, and, I must add, may be irregular or actually intermittent, for while, as a general rule, irregularity of the pulse is one of the least invariable symptoms of disease of the brain, there are some children with whom any disorder of the nervous system, especially such as is sympathetic with disturbance of the digestive organs, is invariably attended with irregularity of the heart's action.

Pain, dependent on real cerebral disease is rarely limited to one part of the head; or, if it be, is referred to the forehead. It is generally, though not invariably, less intense, the intermissions of suffering are less complete, and some one symptom almost always attends the pain: it may be sickness or obstinate constipation, or dislike of light or sound, even when the pain abates—some one symptom, small in itself, but enough to keep alive the anxiety of anyone

who subscribes to Morgagni's saying, that 'the habit of observation is the foundation of the art of Medicine.'

There is, however, one form of real neuralgic headache which is by no means rare in children after the commencement of the first dentition, and which ceases to occur at puberty, if not earlier, though it not very rarely returns in early manhood or womanhood, and then is what we know so well as the sick headache of hysterical patients. It is essentially an ailment of development incidental to the time when the brain is first called on for the performance of its higher functions, and the whole nervous system is first stirred by the emotions, and accordingly it passes away as the new duties and new feelings become familiar.

It does not by any means always depend on over-study, though I do not ever remember meeting with it in children who had not yet gone into the school-room; and I have frequently found it dependent on too continuous application, though the number of hours devoted to study in the course of the day may not have been by any means excessive.

The child's brain soon tires, and the arrange-

ment so convenient to parents of morning lessons and afternoon play, works far less well for it than if the time were more equally divided between the two.

The attacks not infrequently come on on awaking in the morning, and become rapidly worse, the pain, which is almost always referred to the forehead, though I have not observed it to be confined to one side, being attended with much intolerance of light and sound, with nausea, and often with actual vomiting. Like the vomiting of sea-sickness, however, previous gastric disorder has no necessary share in its production, and I may indeed add that it is often difficult to assign any special exciting cause for the occurrence of the attack. The suffering is more often relieved by warm or tepid than by cold applications, and not infrequently pressure or a tight bandage greatly mitigates it. In no case does the attack last more than twelve hours—usually not more than half that time; it passes off with sleep, and leaves the patient weak and with a degree of tenderness of the head to the touch.

Such attacks may occur every fortnight, ten days, or even oftener; and the exceedingly

unhealthy appearance of the evacuations passed during or just after an attack, and which are often quite destitute of bile, leads to the children being dosed with mercurial and other purgatives by those who mistake effect for cause, and who, in spite of repeated failure, still continue most powerful dosing, though it neither relieves the attack nor prevents its return.

The frequent return of these headaches, which to the patient's friends is the great source of apprehension, is to us the ground on which we rest our hopeful prognosis. A first attack, indeed, may make us anxious, till we see the manner in which it passes off so speedily and completely, and when afterwards a second or a third attack comes on with the same severity of onset, the same rapid worsening, and the same quick passing away, we know that the symptoms have no grave meaning.

In any doubtful case, too, the ophthalmoscope will certainly be a valuable help to diagnosis, and I have on two or three occasions derived most useful guidance towards a right diagnosis from the report of some colleague expert in the use of that instrument.

I said that there was another class of cases in which intense pain has a deeper signification than we might at first be disposed to attach to it—namely, when pain, apparently neuralgic, is really due to disease of the hip-joint. In the majority of instances, pain and lameness come on together, increase slowly and usually simultaneously, and though the pain be referred to the knee, careful examination will rarely fail to discover tenderness about the hip-joint, and thus to save from the possibility of mistake. But I have seen a few instances of the acute onset of hip-joint mischief in which the pain referred to the knee was intense, completely intermittent, and unattended by the slightest tenderness about the hip, but accompanied by some gastric disorder to which the whole ailment had for days been referred. In other cases, too, the same condition has come on during convalescence from some tedious illness, such as typhoid fever, and in such conditions the risk of error is perhaps even greater from the circumstance of the disease beginning at a time when the child was unable, from its previous malady, either to walk or to stand.

I will not enlarge more on this, but I shall

not think I have said too much if I do but impress on the minds of any of my younger brethren who may have honoured me with their presence, the excessive rarity of pain in childhood except as a sign of local disease.

But if the sympathy of the nervous system with constitutional disorder so rarely manifests itself by pain in infancy and childhood, it shows itself by disorder of the motor power with a most wonderful frequency. Imperfect digestion, intestinal disorder, diarrhœa, constipation, too long fasting, too full a meal, the irritation of teething, the onset of acute inflammation, the outbreak of an eruptive fever, all may give rise to convulsive movements, often to a fit of convulsions.

I need not, however, insist on the frequency of convulsions in childhood, or on the slightness of the causes to which they may be due, but shall occupy your time more profitably in pointing out some of their peculiarities.

First of all, I may observe that convulsions in childhood generally depend on excentric causes, not on primary disease of the brain; or, at least, do not occur as a consequence or symptom of brain disease until such disease has

already reached an advanced stage. They mark the irremediable mischief in a case of acute hydrocephalus, they indicate the irritation in the surrounding structure produced by tumour or tubercular deposit in the brain, they do not give the first alarm, nor warn us of the incipient danger. Acute cerebral congestion, such as results from sunstroke, or from exposure to a very heated atmosphere, though not to the direct rays of the sun, sometimes sets in with convulsions; and we not infrequently hear that convulsions in very early life have been the first symptom ushering in that accumulation of fluid in the ventricles which we know by the name of hydrocephalus. Our knowledge of the pathology of the disease would render the accuracy of this statement very doubtful, and I am certain that a careful inquiry will almost always elicit the fact that there has been a stage betokening irritation and disorder of the brain before the sudden outburst of the convulsions. He is but a careless observer whom the sickness and the headache and irregular pulse have not forewarned of the approach of tubercular hydrocephalus; and, as a general rule, subject to but few exceptions, even the slow

advance of tubercular deposit or of other tumours in the brain can scarcely be overlooked. The convulsions which occur in these latter cases, too, are usually very characteristic. They are confined to one side, frequently to one arm; and the face, though usually, is not always distorted, while the movements are not violent, are seldom of long duration, often unaccompanied by loss of consciousness. The fit is almost always followed by partial paralysis of the affected side; and the paralysis, though very incomplete, seldom passes entirely away. In such cases, too, the greater dilatation of one pupil than of the other is almost always apparent, and ought to guard from error, while, in addition, it very frequently happens that the convulsive movement recurs at uncertain intervals of several days without obvious exciting cause; without any increase of severity, or more marked loss of consciousness than on the first occasion, but usually followed by an increase of the previous paralysis.

Thus much it seems worth while to say about a mistake which it is not difficult to avoid if once we are aware of its possibility.

Convulsive movements in early life are very

frequently partial, but all partial convulsive movements have a great tendency to become general. The form which these generalised convulsions assume seems to depend to a very great degree on the age of the patient. In infancy and early childhood general convulsions are, for the most part, violent, attended by unconsciousness, and by such general disturbance of the nervous power which ministers to the vital organs, that, in spite of their usually short duration, death not infrequently takes place during the paroxysm. They have a tendency to recur at uncertain intervals without obvious exciting cause, and then receive the name of epilepsy; they retard mental development or occasion a retrogression of powers already acquired, and this in proportion to the frequency of their return and the causelessness of their occurrence.

The same class of causes as tend to produce epilepsy in infancy and early childhood commonly occasion chorea after the beginning of the second dentition, though I have seen chorea in an infant of eight months old, and we all know that there is no age free from the liability to epilepsy. The movements which, in chorea,

begin with twitching of the mouth, winking of the eyes, uncertain movements of the hand, or an unsteady gait, increase, become general, deprive the child of the power of walking or of grasping, render even swallowing difficult, and speech impossible. But they do more than this, for they weaken the mind and dull the perception; and, long after the movements have ceased, the intellectual powers are left impaired by the attack. They are chronic, however, in their course; days, weeks, months, mark their duration, while a few minutes or a few hours are the longest time during which a fit of epilepsy lasts, or could last without destroying life. Paralysis hardly ever follows chorea; and though the attacks have a disposition to recur, yet in general it is after a longer interval, and in consequence of a more obvious cause than will suffice to produce the return of an epileptic seizure. Unlike epilepsy, too, the attacks of which, if they do recur, generally do so with increased severity, the second attack of chorea is usually less severe than the first, and the third than the second.

Partial convulsions tend to become general. It is this fact which gives its importance to the

crowing inspiration, the indrawn thumbs, the twitching of the mouth in the young child. The general convulsion which has happened once is apt to recur; and its importance is to be measured not by the present danger only which accompanies each seizure, but by all that is implied in a child becoming epileptic. Be the cause, too, what it may by which the fit is first excited, a paroxysm of whooping-cough or the irritation of thread-worms—something which would seem most temporary in its character and furthest removed from any abiding influence on the higher endowments of the nervous system—it yet leaves behind a mark, a stamp, a stain, not unlike what theologians tell us of the flaw which our first parents' sin has left upon our moral nature,—a predisposition, in short, to a great evil. The analogy, too, holds good in this, that months and years may pass, the accident even may have been forgotten, when suddenly all comes back again. The exciting cause may seem too trivial to produce so grave a result. You ask whether fits have ever occurred before; and you learn then for the first time that they had happened once, or oftener, months before, or longer still; but, as the parents tell

you, they fancied they were cured, and had even ceased to remember their occurrence.

The exact requirements of modern medicine call on me to justify, by figures, a statement so sweeping as that which I have made, and I regret that the numbers which I can bring to bear directly upon it are very small. Of 42 epileptic children, not including epileptic idiots in whom the epilepsy and the idiocy might be referred to a common cause, 23 had suffered from fits in infancy, and in 14 of these the fits had continued at irregular intervals of a few weeks up to the time of the patient coming under my notice at an age varying from 3 to 12 years. It did not appear that hereditary predisposition played any very important part in the production of these attacks, since it existed only in 7 of the total 42, and in 3 of the 23 cases. I purposely do not go into the question of the special constitutional peculiarities which predispose some infants more than others to convulsions, but I will just say that while I believe most thoroughly in the influence of the ricketty constitution, all traces of it, if it ever had existed, had passed away in many cases where the fits continued still.

Again, my impression is, though I state it only as an impression, that the hereditary tendency to epilepsy comes into play later in life than the age of childhood, just as does that to hysteria and to insanity. It is usually with the evolution of the sexual system that hysteria shows itself, and with the pressure of life's cares that the mind is thrown off its balance, and then it is with regard to both that the ancestral taint first displays itself; so, too, is it, I believe, to a great degree with the hereditary tendency to epilepsy.

But whatever allowance may be made for the absence of the fullest proof of the views I have expressed, there still remains ground enough for the belief that epilepsy in childhood is to a very great degree dependent on disturbance of the nervous system dating back from infancy; and on the practical importance of this belief I have no need to comment.

Be the age at which epilepsy commences what it may, there is, of course, a great resemblance between its main features in the child and the adult.

Still it may be well to notice that, in the first place, no conclusion can safely be drawn from

the severity of a convulsion, or from its general character as to the probability of its frequent recurrence, or of its passing into permanent epilepsy. The severity of a fit certainly affords no reason for this apprehension, nor does its recurrence, so long as a distinct exciting cause can be discovered for each return. The fits which cease in the teething child when the gum is lanced, and which on each succeeding return are equally relieved by the same proceeding, do not imply that there is any great tendency on their part to become habitual. In the same way, the attacks which follow on constipation, or on indigestion, or on some other definite exciting cause, may probably with care be guarded against, and their return prevented. Those, on the other hand, which come on without any distinct exciting cause, or those which, coming on during teething, continue to recur at intervals while the evolution of the teeth is going on, but are not excited by the irritation of some particular tooth or teeth, are much more likely to become permanent. Even though they should cease for a time when teething is completed, they will be likely to return with the commencement of the next

evolution period, or, in other words, with the second dentition. In later childhood causes acting on the emotions, as fright, or on the higher mental powers, as overstudy, are more apt to be followed by permanent epilepsy than those which are confined in their influence to the organic system.

If, on the one hand, the violence of a convulsive paroxysm does not by any means imply the greater proportionate risk of its recurrence, so neither can any hopeful conclusion be drawn from the slightness of an attack or from its momentary duration. This, indeed, holds good equally in the adult, with whom the *petit mal* is known to be no less ill-omened than the well-marked convulsion. The frequency of the attack, in short, rather than its severity, is to be taken as the measure of its importance.

In the adult we are familiar with attacks of slight epilepsy—the *petit mal*, as it is termed—which yet we know tend none the less surely to develop into the characteristic epileptic paroxysm, and which, indeed, we regard with perhaps even more solicitude than the regular epileptic convulsion, as far as their influence on the intellectual powers is concerned. In childhood

such attacks are at least as common preludes to epilepsy as in the adult, and are the more deserving of attention from their very liability to be overlooked. That a grown person should stand for a few seconds, his eye fixed on vacancy, that he should suddenly stop in the midst of an unfinished sentence, or pause with no obvious reason in the act of writing, or of eating, or of drinking, at once attracts notice, its repetition excites alarm. In the child, however, such things are apt to be overlooked, or to be called bad habits, or to be passed by with some commonplace unmeaning observation which consoles the friends, and with which the doctor too often feels himself relieved from the duty of careful inquiry and close observation. I believe, however, not only that such an onset of epilepsy is at least as common in the child as in the adult, but that an imperfect suspension of consciousness—the child knowing what passes, though unable to speak—is not very uncommon; and, further, that it is far from unusual to have the early stage of epilepsy in childhood announced by sudden incoherent talking for a few seconds, or a wild look—a cry of surprise, or a short fit of almost hysterical sobbing announcing

the close of the paroxysm. And yet these attacks, as far as my experience goes, pass on into epilepsy; do not resolve themselves into any condition of hysteria. The early symptoms of epilepsy in childhood are also the more likely to be misinterpreted, from the circumstance that they are frequently accompanied with a moral perversion much more striking than any loss of mental power, and which, I believe, indeed often precedes it. We can judge the intellectual power of the adult; we know that a man was prompt in business, accurate in accounts, and so on; and if he have well schooled his heart, the intellectual weakness will often show itself before the moral failing. With the child, however, it is just the opposite; there are, in early life, alternations of intellectual activity and mental indolence; of quickness and comparative dulness, which all who have had much to do with education are well aware of, and which are perfectly compatible with health of body and health of mind. But changes in the moral character of a child who is still under the same influences have a far deeper meaning than is often attached to them; a child does not suddenly become wayward,

fretful, passionate, mischievous, except under the pressure of some grave cause, into which it behoves us to inquire, and which we shall seldom fail to discover.

One other point there is also to bear in mind: namely, that the child is impelled by the vague sensation of hitherto unknown dread not to conceal the early symptoms of epilepsy as the grown person would do; longing as the child does for love and sympathy, and weakened in its moral force, it craves for more love, more sympathy, it exaggerates its symptoms, it assumes some which do not exist at all. The conclusion is a natural one, but none the less untrue, that the child who is discovered to be shamming has nothing the matter with it—is simply a naughty child.

In the child as in the adult, epilepsy blunts the intellect as well as weakens the moral power; and does both more speedily and more effectually in proportion as the child is younger, and its mind and will are less developed. It is the young plant stunted and deformed, not the old tree withered. I need not say how far sadder is the former than the latter. And yet this has its compensation; for, as the powers

fade quickly, so, if the attacks cease, they recover with surprising rapidity, and as the moral powers are the first to suffer, so they are the first to regain—I will not say full vigour, but at least a degree which raises the children to be objects of specially tender affection, rather than of pity and compassion.

I do not propose to enter into detail on the wide question of the treatment of affections of the nervous system in early life. To do so usefully would require that I should go into minute particulars, that I should appeal to the evidence of figures, and that I should guard each statement by a reference to cases—a course right and necessary in a treatise, but out of place and irksome in brief lectures such as these.

Still, it might seem a grave omission if I were to pass over entirely unnoticed the circumstances which govern our prognosis, and the principles which regulate our treatment. We are, in cases of convulsions especially, asked with so much anxiety as to the prospects of the child. Will it get better? will the fits return? are they epileptic? will they affect the mind? are questions we often have to listen to, too often without being able to return to them a

satisfactory reply. To the question whether fits are epileptic, I always answer that the name of epilepsy is given to convulsions occurring at uncertain times, and without obvious exciting cause, and that therefore the less frequent the return of the attack and the more definite the cause which produced it, the greater is the ground for hope; so that, consequently, a severe fit seldom happening is of far less serious import than are slight seizures if frequent and apparently causeless in their return. The more definite the exciting cause of an attack, the brighter the prognosis. The fits which persist from earliest infancy imply the existence of some congenital cause for their occurrence, and leave but little ground for the expectation that they will ever cease. Attacks which coincide with teething have a different import according as they occur only while local irritation is produced by some particular tooth, and cease when it has pierced the gum, returning only with the approach of another tooth to the surface; or, as on the other hand, they seem induced by the constitutional disturbance which attends the whole period of dentition, and so continue indifferently during the pauses in the eruption of

the teeth, as well as during their active evolution.

The difference, in short, is the same as we sometimes see about the approach of womanhood, when one girl will suffer from hysteria or headache, or other symptoms of disordered nervous system, only at the menstrual period, while another will experience these ailments during the whole time of the evolution of the sexual system. In the former case, the symptoms will probably cease when development is complete; in the latter they are very apt to continue all through life. The convulsions which sometimes complicate the so-called spasmodic croup seem to have a much less tendency to terminate in epilepsy than fits which come on without any previous laryngeal spasm, even though they should be of far less frequent occurrence. The explanation of this I suppose may be that the fits of laryngismus are consequent on the spasmodic closure of the glottis, and that this spasm is due to the local irritation of special nerves by the teeth or by indigestible food taken into the stomach rather than to a more general disorder of the nervous system. This fact, too, is but an illustration of the law

already laid down as to the definiteness of the exciting cause lessening the gravity of the prognosis. The fits which become epileptic oftener come on during the cutting of the first four molars than at either an earlier or a later period of dentition, and it is seldom that dental irritation produces convulsions either from decay of the first set of teeth or during the appearance of the second set, though to both of these rules I have seen occasional exceptions, especially in cases where, from the narrowness of the jaw, the teeth of the second set are extremely crowded.

Intestinal irritation and disorders of the digestive organs are at all times in early life a frequent occasion of convulsions, and almost the sole removable exciting cause after the completion of the first dentition. I do not, however, think that worms are by any means so frequent an exciting cause of fits as they are assumed to be by the public, whether lay or medical. The nervous symptoms which are sometimes dependent on tape-worm are not only rare in their occurrence, but also seldom assume the form of epilepsy; and though I have once or twice seen violent epileptic convulsions de-

pendent on thread-worms, still, in these cases the worms were present in great numbers, and the convulsions, which ceased on their expulsion, did not subsequently recur. Intestinal disorder is sometimes erroneously assumed to be the cause of epileptic fits, in consequence of the exceedingly unhealthy appearance of the evacuations voided a few hours after their occurrence. The inference, however, is often incorrect. The action of the liver and the functions of the digestive organs are arrested or disordered by the nervous shock which manifested itself by the convulsion, and hence the vitiated secretions which are afterwards expelled. It is the state of the secretions before a fit, and not after it, on which our conclusions must be founded.

Small unsuspected causes not seldom have to do with the occurrence of convulsions, and with their prevention; and a careful record of a child's life for weeks or months will often throw upon the case a wholly unexpected light. Hence, whenever a child is brought to me, in whom, from the apparently causeless occurrence of convulsions, there is ground for apprehending epilepsy, I always direct the parents to keep a tabulated statement of each day's history,

containing a separate column for food, sleep, evacuations, temper, medicine, if any is given, and convulsions, in which last column the hour and circumstances of their occurrence, their character and duration are all recorded. Over and over again I have by these means discovered a wholly unexpected clue to the interpretation of a case which seemed most obscure.

Of all cases of epilepsy, those in which disorders of the digestive organs play a leading part are the most hopeful. These are the cases to which the principle which lies at the bottom of the plan of the late distinguished American physician, Dr. Jackson, and which consisted in the adoption of a diet exclusively of milk and of farinaceous substances is applicable. I say the principle, for that I apprehend to consist in supplying a food which is simple, unstimulating, and easy of digestion; and the withdrawing meat, the diminishing the total quantity of food, and regulating the intervals at which it is given, is sometimes followed by almost unhoped-for results. The power of digesting the curd of milk, which varies much in different children, of course governs the

degree to which an exclusively milk diet can be carried out in practice.

It were worse than idle before such an audience as I have the honour to address to go over the commonplaces of medical practice, but I may be expected to say something as to my experience of specifics for epilepsy. I have tried all, or almost all, in favour of which any reasonable evidence could be adduced, and all have failed. The only one which has appeared to me to exert any specific power over epilepsy is the bromide of potass, and in a few instances its results have been most remarkable. It hardly ever fails to arrest the frequency of attacks; now and then it has seemed entirely to prevent them; and the crucial test of arresting fits by bromide of potass—of suspending the remedy and seeing the fits return, and of once more putting a stop to them by the resumption of the medicine, has on some occasions established its value beyond question. In the great majority of cases, however, the amendment has not entirely maintained itself; the system has after a time become habituated to the remedy, and after several augmentations of the dose, each of which has seemed to renew

the old influence, I have been compelled to discontinue it in consequence of the depression of the pulse, the general loss of power, and the appearance of the peculiar pustular eruption which occasionally follows its long-continued use. In other cases, too, the agent which at first worked wonders, ceased to have any influence. The constitution tolerated the increased dose, but so did the disease; the patient continued to take the medicine, but the fits, though once controlled, returned after a time just as before.

Still, with all these drawbacks, the bromide remains the only agent which, in my hands, has made the least approach to the character of a specific. I always employ it when I can find no distinct indication to guide me. I confess that I use it empirically, for I have found no means by which to distinguish beforehand the cases where the bromide will do permanent good from the other apparently similar, but much more common instances in which its influence is merely temporary.

One point still remains connected with the treatment of epilepsy to which I cannot abstain from referring. This is the influence of moral

control in lessening the frequency of epileptic seizures. Over and over again children are received into the hospital hopelessly epileptic; with the history of attacks recurring three or four times a week, or oftener still. They remain a week or a fortnight, or even longer, in the institution, and during this time not a single attack occurs, or perhaps one, just enough, in short, to show that the disorder is not cured, but only kept in check by the regularity of the gentle rule to which the little ones are subjected. The order goes for much in these cases; the novelty goes for something too; for almost invariably I have found that after a time the apparent improvement became less marked, and, though they continued better than when they first came to the hospital, the children were still epileptic; the advance of the disease had been retarded, but its progress had not been arrested. It is a common observation that the epileptic will pursue difficult and dangerous occupations with safety, like the bricklayer mentioned by Sir Thomas Watson, who was the only man in the neighbourhood who would venture to repair the tall chimney of a manufactory, and who, when so engaged, never experienced a seizure.

The unconscious influence of mental preoccupation in lessening the severity of an attack, which it may yet not altogether prevent, receives a further illustration from the history related by M. Trousseau of the architect who was occasionally seized when on the scaffolding of a building, and then ran backwards and forwards, uttering a cry, but who never fell from the giddy height, and soon regained his consciousness, and continued, as though nothing had happened, to give directions to his workmen. It is in the morning hours too, soon after waking, or on first rising, that the attacks oftenest come on; or else when undue exertion, either of mind or body, has tired for a season the nervous energies. The careful regulation of exertion both of mind and body, the control of the moral feelings, the imparting self-command, the putting new objects of interest before the awakening spirit, these are the means that we must employ if we would prove ourselves worthy of the highest meaning of our vocation. *Medicus* imports one who cures, and the knowledge of the powers placed by God in minerals, roots, and herbs is but a part of what we are bound to know. The Goddess of Health gave her name

to the Greeks who practised our art; and our English *leech* and *leechcraft* are terms which have no reference, as the mere sound of the words might seem to import, to blood-letting. They are found in the Gothic and cognate languages with the sense of healer and the art of healing, associated with the idea less of remedies administered than of supernatural powers called into play to cure.

Even though we reject the supernatural element in the histories of cures wrought by pilgrimages to distant shrines, since, perchance, as one of our great historians has well said, 'Man now knows too much, believes too little,' there still remain the influence of moral control, of the fixed direction of the mind to one great object, the novelty of the journey, the expectation of a cure, all contributing to the recovery of the patient as much as the remedy prescribed or more.

> 'Think! could we penetrate by any drug,
> And bathe the wearied soul and worried flesh,
> And bring it clear and fair?'

It was well and wisely done to separate our profession from the church; but it were ill done and unwisely, even for our patients, if, with

what some may consider an antiquated faith, we also put aside our belief in all remedies which do not admit of being weighed or measured, and whose names are not recorded in the British Pharmacopœia.

LECTURE II.

ON CHOREA AND PARALYSIS.

Chorea; its study more hopeful than that of epilepsy.—Remarkable liability to it of female sex.—Apparent in early childhood, therefore independent of influence of sexual system.—Proportion of sexes opposite in cases of epilepsy.—Causes of chorea various.—Reasons against universal application of theory of embolism.—Rarity of hemichorea.—Analysis of sixty-six cases of chorea.—Relation of chorea to rheumatism and to disease of heart.—Comparative rarity of emotional causes of chorea.—Various modes of onset of chorea.—Nature of heart-affection which attends it.—Paralytic element in chorea; illustrative case.—Temporary impairment of intellect.—Treatment of chorea.—Tendency to spontaneous improvement.—Mental and moral influence, and cases where it proves of service.—Gymnastics.—Internal remedies: tartar emetic; sulphate of zinc, its occasional power as a specific.

Paralysis.—Diphtheritic paralysis.—Temporary paralysis after long illness.—Tardy acquirement of power of walking, or loss of it.—Share of rickets in producing it.—Loss of power supposed to be paralytic, from disease of spine or of hip-joint.—Paralysis of idiots, and that from cerebral tubercle.—Characters of infantile paralysis.—Importance of habit of minute observation.

Mr. President and Gentlemen,—The transition which we make to-day from the study of epilepsy to that of chorea may be unscientific, but it has at least the merit of practical con-

venience. In the former lecture we had to do with cases in which convulsions are sudden in their onset, often violent in their manifestations, generally brief in their duration, accompanied with temporary loss of consciousness; ceasing indeed completely for an uncertain time; but tending to recur without obvious cause, and by degrees to arrest the development of the mind, to degrade and debase the moral powers, and thus presenting to us in its hardest form that problem which philosophy blunders at and revelation does not attempt to solve—how and why it is that infinite good and almost infinite evil stand together in this world of ours; why the coin fresh minted should have its image and superscription blurred and effaced so soon. But we must leave the question; for our better knowledge denies us the solace which the poor Savoyard finds when a Cretin child is born to him, and grows up with his other little ones, among them but not of them. 'It is Christ's child,' says he; 'its soul has stayed above to serve as a sort of angel guardian to the rest on earth, to welcome them to heaven.' A fond and foolish superstition it is true, but wiser perhaps than some of our philosophy in this,

that an inexplicable riddle and an awful affliction do not shake the peasant's simple faith in an overruling good, that he detects what the wise man too often fails to hear; how

> 'Through the thunder comes a human voice;'

and the sage's doubt, scarcely his hope, above his expectation,

> 'So the All-Great were the All-Loving too,'

lies at the bottom of the poor man's belief; is not seldom almost the only article of his creed.

To-day we deal with a less painful subject, with convulsive movements gradual in their onset, slow in their progress, unattended with any disposition to permanent impairment of either the mental or the moral powers; little amenable indeed to treatment, but tending usually to a spontaneous though gradual recovery. These convulsions indeed, like those of epilepsy, are apt to recur, but with the remarkable peculiarity that their first attack is commonly the severest; that their evil effects very rarely outlast the period of youth, and that it is unusual for them to occur in adult age.

It was at one time supposed that these con-

vulsive movements were mainly connected with the changes of approaching puberty, and their greater frequency in the female sex than in the male was not unnaturally associated with the greater importance of the changes which the development of the sexual system brings about in the constitution of the girl than of the boy. But though the fact of the greater liability of the one sex to chorea is undoubted, so that of 775 children suffering from it who were admitted as In or Out-Patients of the Children's Hospital, 499, or 64 per cent. were girls; still not only were all of these children under the age of ten, but 66 out of 102 of the number were under the age of 5. At the same time the difficulty thus presented to us is not solved by what might seem to be the ready explanation that girls are on the whole more liable to convulsive affections than boys; since of 758 epileptics under the age of ten, 409 were boys, only 349 girls. The carefully compiled tables, too, of my friend and colleague, Dr. Gee, published in the Bartholomew's Hospital Reports, and which make up, by the care with which the facts have been collected for the smallness of their numbers, illustrate the same point. He

found that of 48 cases of laryngismus in ricketty children under the age of three, 34 occurred in males, only 14 in females; and out of an equal number of cases of general convulsions under the age of 3¼ years; 33 occurred in boys, 15 in girls. We may therefore take the fact, I do not attempt its explanation, that as with acute hydrocephalus and all the graver forms of disease of the nervous system, whether acute or chronic, the liability of the male sex preponderates; so all through life the slighter forms prevail in the female sex. Neuralgia, chorea, hysteria, are the special heritage of woman from her earliest years, as much as the gentle voice, the flowing hair, the graceful form.

But not only does the hypothesis which would connect the occurrence of chorea of necessity with any of the changes which attend or prelude the period of puberty fall to the ground when carefully examined, but equally untenable are the various other theories which would refer the occurrence of chorea exclusively to one set of causes. Digestive disorders of various kinds, debility, anæmia, variously altered states of the blood, such as exist in rheumatism; or even actual lesion of the brain itself, such as embolism

of the small vessels of the corpus striatum, have been put forward less as possible factors of the disorder than as invariably producing it. Now, with the most sincere respect for the distinguished Fellow of our College who has propounded this last theory, I do not think that the clinical history of chorea at all bears out the supposition that it is dependent on any invariable organic change, any more than on disorder of any one set of functions. The occasional suddenness of its occurrence, the more frequent tardiness of its development, its tendency to recovery, but nevertheless to return at long, uncertain intervals, and with the peculiarity of the subsequent attacks being almost invariably milder than the first, all appear to me to tell against such a theory as affording a constant explanation of the disorder. Moreover, it is very rare for chorea to continue limited to one side. I found it confined to the right side in one, and to the left in two, out of 66 cases; and though it generally begins on one side, whence it extends to the other, the side first affected usually, though not always, continuing to be affected the more severely; yet the instances are far from unusual in which

both sides of the body, both upper and lower extremities, are affected from the very first. In such cases a general unsteadiness of gait and uncertainty of grasp, and strange distortions of the face under any excitement, or even independently of excitement, are the first symptoms which gradually deepen into chorea. The great rarity, too, of paralysis as a permanent sequela of chorea may be alleged as another reason for doubting its usual dependence on any form of organic change.

There is, I know, no error greater or more mischievous than that which leads one to draw too wide a conclusion from scanty data.

I give, therefore, the following analysis of 66 cases rather as a contribution towards our knowledge of the subject than as adequate to establish any fact beyond dispute.

Of the 66 cases, 20 were male, 46 female.

In 14 cases, the right side, and in 14 the left was the first affected.

In one case only did the movements remain limited to the right side; but in eight, having begun on the right side, they continued throughout to be more severe on that side.

In two cases the movements remained through-

out limited to the left side, and in three more they were severer on the left than on the right side.

In the remaining 38 cases the movements affected both sides from the very first, or if there were any affection of one side earlier than the other, the difference was not such as to attract the observation of friends. In eight of the 38 the right side continued throughout the more affected, and in one the left; but in the other cases there was no such predominant affection of one side as to be noteworthy. It must be added, first of all, that affection of the arms almost always precedes that of the legs, even when both sides are equally involved, though I do not think the arms are the first to recover; and, in the next place, it is very rare for improvement to advance on both sides with equal rapidity, but power is commonly acquired much more quickly on one side than on the other.

The above facts show a disposition, though not a very marked disposition, to affection of the right side more than of the left; but at the same time they prove the cases in which the disorder involves both sides to be by far more

common than those which could with any justice be termed hemi-chorea.

The same cases yield results not altogether without interest as regards the causes of chorea.

In 16 instances rheumatic symptoms accompanied or preceded the chorea.

In 11 of these the heart's sounds were accompanied by a systolic bruit, which persisted after convalescence in 10 of the number.

In one of the 16 cases rheumatic symptoms and heart disease, which latter was very extensive, *followed* in the course of the chorea; but in all the other cases the rheumatism preceded it, sometimes immediately, sometimes at an interval of several weeks.

In nine cases, though no rheumatic symptoms were present, and though there was no history of rheumatic affection, the heart was found to be already the seat of valvular disease when the patients came under observation.

In two cases chorea came on during scarlatina. In one of these cases the heart was not affected; in the other the heart disease was so grave as to occasion the patient's death.

In one instance it succeeded to measles.

In 12 chorea was preceded by general failure

of health; a temporary bruit accompanied the heart's action, which ceased with the patient's recovery in one of these cases.

In one instance it was attributed to overwork.

In six it was referred to fright, and in one of these six cases there was a temporary bruit, and in one a murmur which persisted.

In the remaining 19 cases no special cause was assigned for the occurrence of the disorder; the movements in each case having been the first evidence of failing health. Four of these cases, however, were secondary attacks; in two of them a first attack had followed rheumatism; in one had succeeded scarlatina. In the fourth instance the first attack had succeeded to scarlatina, while the second, like the third, in which the patient came under my notice, had been apparently causeless. In this case there was a temporary bruit, which disappeared as the chorea improved; in the other there was not even temporary affection of the heart.

I may further add that there does not seem to be any connection between the presence or absence of rheumatism or of heart affection, or of

both, and either the severity of the chorea, or the tardiness of recovery, nor does there seem to be any special disposition to the recurrence of chorea in those whose first attacks were associated with rheumatism.

But though this be true, there is undoubtedly a connection between that state of constitution which predisposes to chorea and that which predisposes to rheumatism; and both these tendencies predominate in the female sex. There is, I am aware, an impression that chorea is more common in the female, rheumatism in the male sex; but however the special exposure of the male to variations of temperature and other exciting causes of rheumatism may modify the results in the adult, before the period of puberty the preponderance of liability to rheumatism is found to be decidedly with the female sex. Of 520 cases of rheumatism in children under the age of 12, and mostly under the age of 10 years, admitted either as in- or out-patients into the Children's Hospital, only 243 were male; 277 were female children. If, for the sake of being surer of our diagnosis, we leave the out-patients out of consideration, we arrive at a total of 84 rheumatic boys to 88

rheumatic girls. But as 4,357 boys were admitted to 4,080 girls, we have a proportion of one rheumatic boy in 51·8 to one rheumatic girl in 46·3.

That a relation exists between the two conditions seems, then, to be beyond doubt; but at the same time this relation is far from constant. It is by no means limited to cases of severe chorea, nor to those cases, on the other hand, in which rheumatism is specially severe, or in which it is complicated with heart affection; while in some instances, though but rarely, the chorea occurred first, the rheumatism afterwards. Slight rheumatism followed by severe chorea, severe rheumatism succeeded by slight chorea, heart disease associated with chorea, or chorea followed after some time by heart disease, all point to some one fact underlying all these its varied expressions. I hesitate only to attribute to it so universal an application as is suggested by Dr. Hughlings Jackson, and prefer to treasure up these facts as materials towards the solution of a question as yet unanswered.

One other result of some interest may be deduced from these facts, namely, the compara-

tive rarity of the emotional causes of chorea to which common prejudice attaches so high an importance. My own impression, too, founded independently of these facts, is that emotional causes do not really come so much into play as is commonly supposed. I recall but one instance in which excessive mental work could fairly be put down as the cause of chorea in a child; and in none of them in which the disorder was said to be due to fright was the result immediate, but sometimes a week, ten days, or even a fortnight elapsed between the supposed cause and the occurrence of the symptoms.

It is, perhaps, worth while just to remark here that affection of the facial muscles is not an early symptom of chorea, but comes on about the same time with disorder of the muscles of deglutition and impairment of the power of speech. I refer to this in order to guard against the grave anxiety of friends which is often excited by the grimacing of nervous children, the working of their eyes, and twitching of their mouth. Their apprehensions are, I may say, usually unnecessary, in so far at least as the risk is concerned of the symptoms developing into regular chorea.

It would ill become me, before such an audience as this is, to go over all the old familiar details of the symptoms of chorea, still less, with unskilled hand, to retouch Sydenham's famous portraiture of its features. It is, however, perhaps not altogether out of place to notice the very various modes in which the disorder makes its onset, assuming, one knows not why, now an acute, then a chronic form. In one case, within a week after the commencement of the ailment, the child may be unable to stand, unable to grasp any object, or even to remain quiet in bed, and yet the irritability of the nervous system may not be aggravated by the disorder being complicated with any heart affection; and it may not prove either extraordinarily severe in its character, or peculiarly rebellious to treatment. Those cases are, I think, graver in character which, having set in comparatively mildly, undergo after the lapse of two or three weeks a sudden exacerbation. In such circumstances a bruit previously unheard has sometimes been found accompanying the heart's action, and has proved by its persistence after the patient's convalescence that it was due to some abiding lesion of the heart,

and neither to irregular spasmodic action of its muscular fibres, nor to alteration in the blood. But I must add that I do not connect the worsening of the symptoms and the supervention of disease of the heart as cause and effect. I do not, indeed, know to what to attribute it, for I have seen two cases at one time running a similar course, their symptoms worsening at the same time, and equally without evident external cause, in one associated with the supervention of cardiac mischief, in the other without it. It is true that very mild chorea is unaccompanied by heart disease, and it is also true that the heart affection of chorea is in many instances non-rheumatic, and also that the rheumatic heart affection is exclusively endocardial. Moreover, the evidences of dilatation of the heart are not only very remarkable in some cases, but are also very rapidly progressive. The doubt has occurred to me whether the heart affection may not in some of these cases be due to the disturbance of the organ in its attempts at regular contraction, and to the consequent yielding of its walls, rather than to the trouble produced by actual valvular disease.

It would seem, indeed, to have been so in the following case :—

A girl, nine years of age, had suffered from chorea for about three months before she was received into the Children's Hospital. The chorea had come on apparently causelessly three weeks after convalescence from a mild attack of scarlatina. The child, for a month before admission, had been unable either to speak or to feed herself, to walk or to stand; and the weakness and loss of power were out of proportion to the severity of the choreic movements. The latter lessened still further, and there came some slight increase of the feeble muscular power; but the distress produced by the enormously dilated heart grew worse and worse, and the heart itself, as ascertained by physical examination, became rapidly larger. When first admitted into the hospital, in addition to a loud prolonged murmur accompanying the heart's first sound, a distinct thrill was perceptible by the hand placed over the cardiac region. A month later this had disappeared. The urine became albuminous, the patient grew anasarcous, the right external jugular vein became blocked with coagulum, and a few weeks after admission the patient died suddenly. A post-mortem examination

discovered no affection of the pericardium, no valvular disease, but enormous dilatation of the auriculo-ventricular orifices, and an old clot in the right auricular appendix.

It seems to me that we have not yet learnt all that it were well for us to know with reference to heart affection and its relation to chorea. It is worth something to know that the circumstances which predispose to rheumatism predispose to chorea too, and worth still more if, with our ingenious colleague, we can follow step by step the way in which sometimes at least the secondary mischief is done, and the part which should preside over movement is rendered unstable in the performance of its functions. It would, however, be worth still more if we could ascertain by careful observation that disease of the heart is sometimes a consequence, not invariably a cause, of chorea, and if, guided by this knowledge, we could succeed in controlling its disordered action, and become skilled to prevent, not merely to register, its defects.

But chorea sometimes begins almost imperceptibly, and advances by very slow degrees, being in such cases often limited for several

weeks to one side, and continuing through its whole course to affect one side very remarkably. In such a case the movements are often but slight, perhaps almost none while the patient is at rest, but become obvious so soon as the muscles are called into action. The paralytic element in such cases is often very marked, and I have seen instances of alleged hemiplegia in children who were really suffering from chorea. In some of these cases, too, the anxiety of the friends has been all the greater in consequence of the dulling of the intellect, which is so frequent an attendant on chorea, and which has made them entertain the gravest apprehensions with reference to their child's mental as well as to its bodily condition.

In every case of chorea, over and above the uncontrollable movements, there is always a more or less considerable loss of muscular power. The two conditions always stand in a certain relation to each other, but the paralytic state constantly outlasts the unsteadiness of movement; as is easily found if one asks a patient convalescent from chorea to grasp one's hand. The loss of power is no doubt in some degree due to fatigue; just as any person, who at night

has suffered from cramp in the leg, feels the limb tired in the morning. I may add, by the bye, that one of the reasons for confining the limbs of a patient with severe chorea is, by lessening the degree of muscular movement, to lighten thereby the fatigue, and the consequent loss of power. Sometimes, however, the paralytic condition remains throughout far in excess of the choreic movements, and such cases are usually particularly tedious and difficult of cure.

A boy, six and a half years old, who had never had rheumatism, and in whose family no disposition to it existed, began to have causeless attacks of night terrors five weeks before admission into the hospital. In a week or two he complained of pain in his limbs, and began to lose his speech, and for ten days had been confined to his bed. The rheumatic pains were by no means severe, and were unattended by fever, but there was a loud systolic murmur at the heart's apex. The child was well nourished, but pale and flabby. He lay in bed with a constant twitching of the angles of his mouth and of his eyes, and his fingers were never still. His arms moved slightly from time to time, but he had no power to raise them, nor to move

them otherwise than horizontally; while, though he could manage to stand with his legs wide apart, he could scarcely move his legs to walk. In the course of a fortnight the pains had ceased, but the loss of power was even more complete, so that the child became unable to turn in bed, and, except for the continuance of the twitching, the case had much the character of diphtheritic paralysis. Gradually the movements quite ceased, but left the child, at the end of six weeks from admission, still quite helpless. In two weeks more he began to move his arms a little; in another week he sat up; in a few days more he was dressed; and ten weeks after admission, between fourteen and fifteen after the commencement of the illness, he went out quite well, except that the bruit persisted.

Five months afterwards he re-entered the hospital, with a relapse of chorea; the movements being much more marked than before. The face twitched, articulation and the protrusion of the tongue were difficult, and, in short, the only respect in which the case differed from one of rather severe ordinary chorea was that, before the movements began, the child had complained of stiffness as well as of

pain in the legs. Strychnine was given him, which, without benefiting the chorea, produced two or three attacks of convulsions, although the medicine had not been employed in an excessive dose. All remedies were suspended, and, at the end of three months of gradual but steady improvement, the child went out convalescent.

Four years after he returned, with acute rheumatism, the pain and swelling, however, being inconsiderable, though there was a good deal of delirium at night, and the general constitutional disturbance was out of proportion to the febrile movement. At the end of ten days general choreic twitching came on, and then in a few days were superadded paroxysms of uncontrollable movement of the limbs, with a tendency to opisthotonos, but unaccompanied by loss of consciousness. These attacks lasted for a few minutes, and then left the boy in the same state as before, except with a lessened power over his limbs, though the paralysis never became so complete as on the occasion of his first attack. He continued at his worst for about a week, then gradually mended, and went out well at the end of three months, except in

so far as his heart was concerned. That, however, had become much more dilated, and its functions were performed with much more difficulty and discomfort than previous to the attack.

Since that time, now four years ago, the boy has not come under my observation.

There is much that is enigmatical in chorea. To one of its peculiarities, the aphasia which often accompanies it, and which is not dependent on mere inability to employ the muscles which subserve articulate speech, I shall refer at the next lecture. The impairment of the intellect, however, like the loss of muscular power, deserves a moment's notice. The silliness of manner of the chorea patient is not apparent only, or due to the unavoidable distortion of the features, but is very real, and increases with the severity of the ailment, till the state becomes one of hebetude, in which nothing is done, nor endeavoured to be done, the mind seeming to be wearied as the body is. Both, however, recover, though at uncertain rates; one child remaining dull, and listless, and foolish, for weeks after movements have ceased, the other brightening as soon as

the movements have begun to lessen, and long before power has returned to the limbs. It is, too, as one would expect, the emotional side of the faculties which suffers most, and the child who can repeat correctly, though not very intelligibly, long passages of poetry, will yet long remain fretful, impatient, passionate, prone to bursts of tears. But still I know no instance where the mind did not at last perfectly regain its balance, and the mental faculties show themselves quite unimpaired. The instances, too, are of extreme rarity in which there is any permanent impairment of the muscular power. One girl who had had chorea, affecting chiefly, though not exclusively, the left side, was found, three months after the complete cessation of all choreic movements, to have but imperfect power over her left side. She dragged her left leg slightly, which was a quarter of an inch shorter than the right, while the girth of the left arm was half an inch smaller than that of the right. One child, too, who had had severe chorea, affecting all her limbs, and who, during the acute stage of the disorder, had kept her hands firmly clenched, was found to have wasting of the muscles of the right thumb and of

the interossei—a condition, in short, of progressive muscular atrophy; for it did advance in the hand, but it not only did not extend to the forearm, but the wasting of the muscles ceased, power gradually returned, and at the end of about five months the difference either in power or in muscular development between the two hands was very slight, and improvement was still going on.

Such cases, too, are but the exceptions, which, according to the common proverb, do but prove the rule which warrants us, I think, in speaking hopefully of the issue in all respects of chorea, except in so far as the grave complication of heart disease may warn us to be reserved in the expression of our opinions.

And now I will endeavour to give, in as few words as I can, the results of my experience with reference to the treatment of chorea. In estimating the value of different remedies and of different modes of treatment, it must not be forgotten that chorea is one of those affections in which there is a tendency to spontaneous recovery. Not only does this show itself in almost all cases where improvement has taken place up to a certain point under the influence

of remedies, but very often the improvement, once advanced to this point, goes on to perfect recovery with the same rapidity, whether these remedies are continued, modified, or altogether abandoned. Now and then, too, we meet with instances in which even the severer forms of chorea, after bidding defiance to all remedies, spontaneously improve when all have been discontinued, and such improvement is as complete and as lasting as that which we ever attain by any kind of medication, or by any form of treatment.

Next, it is important to remember that there are certain forms of chorea over which mental and moral culture have the most salutary influence, and in which recovery is brought about by these, wholly independent of the internal remedies employed.

There are, however, two classes of cases to which this moral treatment is inapplicable. First, it is inapplicable to, and powerless to control, those forms of partial chorea that consist in winking the eyes, in grimacing, or twitching the muscles of the face or of the neck, and which are sometimes a source of great annoyance and anxiety to parents. Such cases, it

must be owned, are often very pertinacious, and the condition occasionally, though less frequently than is feared, lasts through life. For the most part, the condition is due to some temporary irritation of the nervous system—generally, I believe, to mental strain; not of necessity to undue length of the hours of study, or to the difficulty of the tasks imposed, but often to a child's nervous anxiety to make progress, and to keep up with his schoolfellows. I may mention, in corroboration of this view, that the state is one of extreme rarity among the children of the poor, in whom, while other causes of chorea are at least as frequent as among the wealthy, mental strain of course seldom occurs. In such cases, too, lessening the mental strain is almost always followed by a cessation of the twitchings, while I have never seen any good result from calling the child's attention to the habit; but, on the contrary, the more his consciousness is aroused to it, the more, in spite of all his endeavours, does it become aggravated.

On the other hand, in cases of severe chorea there is no use whatever in attempting control, for so soon as the child is desired to execute any movement, or so soon indeed as it perceives

itself to be the object of fixed attention, all its movements become increased in violence and completely uncontrollable. In all cases of considerable severity, therefore, the child should at once be placed in bed, and if the movements, in spite of perfect rest, are still violent and continuous, their severity is much abated, and the child is saved much distress and much subsequent exhaustion by putting splints on the legs and arms, and swathing the child completely in soft bandages. As the child gets better they may be removed, but not seldom it is wise to apply them by day, even though they may be removed at night, if, as is sometimes the case, the child should then sleep tranquilly.

Between these two classes—the very partial and the extremely severe—there is a very large intermediate class, over which moral culture and regulated movements have a most remarkable influence. The great drawback from the success of gymnastics consists in the difficulty of arousing the child's will to activity, for it is not the mere mechanical movement of the limbs which suffices, as it does in a stiff joint, for which passive exercise is needed; but here it is essential to success that we should be able

to evoke the conscious attention of the patient. Hence it is that gymnastics are of service very much in proportion to the age of the children; hence, too, they are of more use when practised in a class than by a child alone; and hence, too, music or any simple chant, in time with which the movements are made, helps greatly to fix the attention, and so to expedite the cure.

It were useless to go over the list of all the medicines which have been vaunted for the cure of chorea. There is, of course, a large number of cases in which the existence of some distinct indication leaves no room for doubt as to the remedies to be employed. Such are the cases of habitual constipation, such those, too, of marked debility, in which there can be no doubt as to the propriety of administering purgatives in the one case, chalybeates in the other; and there is a period in most instances of chorea during which each of these remedies commonly finds a place. But there still remain a good many cases in which the movements constitute the disease, and in which there is no special indication to guide us. It is in these cases that we meet with the large class of anti-spasmodic remedies, each of which has been

vaunted and abandoned in its turn, and from none of which have I ever seen the slightest benefit. Neither have the sedatives been more successful in my hands, except when given in a single dose for the purpose of obtaining sleep. Henbane, conium, and belladonna have all proved equally unsuccessful, though I have known them to be tolerated in poisonous doses, without any result either for good or evil. Chloral has also seemed to have no power apart from its action in producing sleep; and the bromide of potass, which sometimes acts like a charm in epilepsy, has seemed to be of very doubtful service in chorea, while sometimes I have been compelled to abandon it on account of its depressing influence on the heart, though it had left the choreic movements completely uncontrolled. The want of accommodation at the Children's Hospital has prevented me from giving a fair trial to the sulphur baths from which French physicians appear to have often obtained very satisfactory results. I am certain, however, that in many instances the violence of the choreic movement is lessened in proportion to the degree to which the action of the skin can be excited; and the extreme dryness of the

skin in a large number of choreic patients cannot have escaped general observation. I very often employ the hot-air bath at night for the purpose of exciting the action of the skin, giving at the same time a diaphoretic dose of tartar emetic, and continue this for three or four consecutive nights, even though the general condition of the patient should be such as to indicate an otherwise tonic plan of treatment. I have also, in some few instances, employed, with decided advantage, large doses of tartar emetic, as first proposed by Dr. Gillette, of Paris. The cases in which I have so used it have been those of special violence of the movements, in which the condition might have been fairly called one of acute chorea, and I have given as much as nine grains of it in one day for three days together, with no sensible influence on the pulse, no sickness, and no diarrhœa, but with very remarkable abatement of the movements. The remedy, of course, requires to be employed with caution. I am accustomed to begin with an eighth of a grain for a child of ten years old; but by doubling the quantity every four hours a very large dose is soon arrived at. So soon as the movements are

distinctly controlled, I cease to augment the dose, while vomiting, diarrhœa, or failure of the power of the pulse is a reason for its immediate discontinuance. I think, too, that the rule which prescribes its suspension for at least 48 hours after it has been given in large doses for three days is a wise one, for a sudden failure of power sometimes takes place in chorea; and though I am not acquainted with any instances in which death could fairly be attributed to the antimony, I have had one case in which death from apparently causeless exhaustion took place 36 hours after the discontinuance of large doses of antimony, which yet had produced neither vomiting nor purging, and in which the diminished power of the pulse before the child began to die was not remarkable.

I have never continued the antimonial treatment through the whole course of a case of chorea, but have always left it off so soon as the violence of the movements was controlled; and have afterwards resorted to whatever other medicine seemed to be the most appropriate. My experiments with strychnine have never been very satisfactory; the twitching of the limbs of itself prevents our becoming aware of

its dose being excessive; and a child's inability to describe its sensations deprives us of another; and I have seen one instance in which its employment, while it failed to benefit a somewhat severe case of chorea, was followed by two attacks of violent tetanic convulsions, which nearly proved fatal.

The only remedy which in my hands has appeared to exert anything of a specific power over chorea is the sulphate of zinc, given in increasing doses. Of this, again, a very remarkable tolerance is speedily established; and though, as a matter of precaution, I always begin with small doses, it is by no means unusual to find a dose of 10, 15 or 20 grains taken four times a day with perfect impunity. I have never increased the dose beyond the latter amount, thinking that if three weeks' trial—at the end of which so large a dose was arrived at—produced no result, the remedy might be considered to have failed. Neither have I ever increased the dose merely to ascertain how large a dose could be borne with impunity, but have continued it at whatever dose fairly controlled the movements; and if it produced sickness have continued a smaller dose until

the movements were controlled, or till I had become satisfied of its inutility. At one time I was accustomed to leave off the remedy gradually, just as I had increased it; but I have since tried the discontinuance of it abruptly, and have not found any return of symptoms follow from this course.

Reference has already been made incidentally to the paralytic condition, almost always of short duration, which sometimes follows an epileptic seizure, or is left behind by an attack of chorea; and we have seen that in the latter case the loss of power is sometimes quite out of proportion to the intensity of the muscular movements. But there are other circumstances in which loss of power over the limbs is occasionally met with in early life, and in which much anxiety is excited lest this loss of power should be permanent. I need not do more than allude to the peculiar paralysis which succeeds to diphtheria, for that is not limited to the child, but, as far as I know, may be observed with equal frequency in the adult, and also in as great a degree at one period of life as at another, varying, however, very remarkably in both respects in different epidemics of the disease.

There is, however, one caution that may not be out of place with reference to diphtheritic paralysis in the child, and that is as to the extreme importance of sparing the patient every form of muscular exertion during the continuance of the paralytic condition. We are all familiar with the occasional failure of nervous power, the occasional stoppage of the heart's action during the acute stage of diphtheria ; of the care necessary even in raising the child from the recumbent position, or in moving it from its bed. At a later period I have seen most serious, and even fatal, aggravation of slight paralytic symptoms after diphtheria take place from allowing a child to be up and dressed because it was fractious and difficult to please if kept in bed. Until the symptoms have for several days been steadily on the decrease, and have become comparatively slight, I am sure the only safe and wise course is to husband the strength, the nervous force, or whatever be that power which is here so strangely wanting.

But besides diphtheritic paralysis, which constitutes a typical form of loss of power independent of disease of nervous structure, there are many instances in which, after illness, the

child who used to walk loses the power, and has once more to be carried about in its mother's arms. This inability to walk, too, is something distinct from the simple result of extreme exhaustion, but persists strangely long, just like that retrogression of the mental faculties which one sometimes observes, especially after fever, in children; when the quick child becomes slow, the memory seems lost, as recently was the case with a little boy who, after typhoid fever, quite forgot his name, till suddenly, long after he had been able to sit up in bed and amuse himself with toys, his mother's voice, which he had listened to mechanically for days, seemed all at once to touch the spring of a locked treasure-chest: he knew his name again, the spell was broken, and all his small store of knowledge was his own again. It is after typhoid fever that the mental affection is usually most remarkable; but it is, as perhaps might reasonably be anticipated, in younger children than those in whom fever commonly occurs, and especially during the long ailing of a tedious dentition, that the loss of the power of walking is most frequent. The child who used to walk pretty well holding by the nurse's hand, or who

even had begun to run alone, will now begin to cry and squat down upon the ground if set on its feet, or, if supported completely, will not make the slightest effort to put one foot before the other. It will, however, not escape notice that the infant will often draw up its feet from the ground, even though it will make no other movement. Both legs are equally affected, but there is no diminution of their temperature, or of their nutrition; and it will be found, if the child is placed upon the lap, that every movement can be executed perfectly.

A somewhat similar question, and admitting of being answered by the same means, occurs sometimes with children whose backwardness in acquiring the power of walking awakes the apprehension that there is some cause which will prevent their ever attaining it. In many of these cases the influence of the rickety cachexia is at the bottom of the inability to walk, but its evidence must be sought for, not in distorted limbs, nor in any deformity of the skeleton, but only in the history of backward dentition, and of a tardy closure of the fontanelle, with perhaps a prominent forehead and large parietal protuberances, and some slight enlargement of

the wrists. To these are almost always added the constitutional signs, either past or present, of rickets; such as the irregular and causeless attacks of vague febrile disorder, the frequent sweats about the head, the constipated bowels, the inactive liver. In these cases, too, there often seems to be a strange morbid sensitiveness of the limbs—not of their surface, indeed, but of the muscles, which, like those of a rheumatic person, are tender and painful if handled.

This condition is not always persistent, but in many instances it comes and goes again; it retards the time at which the power of walking is attained, but the power is gained at last; it remains for months, but health again fails, without any obvious cause, and the old symptoms come back again with the old inability to stand or walk, and then again disappear with returning strength. I have seen this form of paralysis, or rather of pseudo-paralysis, at as late a period as eight years old, and have seen it pass away spontaneously. I refer to the condition because I have never seen it noticed, and because it seems to me to be one which will well repay further investigation.

Children are sometimes said to be paralyzed

when the condition is due to disease either of the spine or of one or other hip-joint. The diminished power over the lower limbs, the signs of suffering when a child is put down to stand, are sometimes unattended by any complaint of pain in the back, and are often observed long before the disease has produced any deformity of the bones. In every case of *gradual* loss of power over the lower limbs it is important to bear in mind its possible dependence on disease of the vertebræ, and carefully to examine the spine in order to discover any point of special tenderness, or any spot where thickening or fulness indicates the existence of disease of the spinal column.

Another class of cases in which it may be difficult to distinguish between real and apparent paralysis is furnished by those in which the limb is unused in consequence of pain in moving it, as in the case of incipient hip-joint disease. The difficulty in distinguishing between the two is sometimes considerable, owing to the circumstance that in the early stage of infantile paralysis there is sometimes much hyperæsthesia of the affected limb. The fretfulness of a suffering child, the impossibility of inducing it

accurately to distinguish the seat of pain, or to say what movements occasion it most suffering, interpose obstacles in the way of an accurate diagnosis which it requires some tact and much patience to overcome. The hip-joint disease will, however, be discovered by the fixed pain which is often referred to the knee, by the elevated temperature of the surface over the affected joint, by the localization of the pain in its neighbourhood, by the occasional paroxysms of intense suffering even independent of any movement, and by the agony produced by any such movements as bring the head of the thigh-bone into contact with the acetabulum.

Two states remain to be noticed as differing from the essential paralysis of infancy and childhood, namely, the paralysis of the idiotic and that which accompanies some cases of cerebral tubercle.

I do not know on what in all cases the paralysis of the idiot depends. It is not simply on the degree of idiocy, so soon at least as we pass beyond the very lowest stage of that condition. I believe that the great majority of idiots walk later, and use their hands later, than other children, just because they awake later than

other children to the perception of those wants to which the hands or feet are meant to minister. But still, in many instances, when they wake to the perception of the need, the instrument is brought into use, and performs its duties fairly well. There are other cases, however, in which the idiot is also paralytic, and the paralysis is so far the prominent condition that the parents and friends have taken no account of the intellectual deficiency, but have fixed their attention exclusively on the inability to walk, or to stand, or to grasp with the hand. In such cases the muscles are often somewhat wasted, and the power of the flexors predominates over that of the extensors, so that the fingers are bent more or less into the palms, while at the same time the heels are lifted off the ground, and the child, when put down, stands upon its toes. The adductors, too, are so much more powerful than the abductors that the thighs are kept close together, and it is sometimes quite impossible to separate them. In such cases, however, unlike those of essential paralysis, the wasting of the limbs is not progressive, nor is their growth retarded, and both sides of the body are almost always equally affected. Such

children, and, sadder still, such adults, we sometimes see, walking about on tip-toe, their forearm held up nearly against the arm, their hands dangling from the wrists, their mouths half open, with a constant silly smile, and indistinct utterance, and a vacant laugh; and yet, in spite of their shaky gait, getting tolerably rapidly over the ground, holding objects firmly in their uncertain hands, grimacing like a patient with St. Vitus's dance when making an extra effort, showing plainly by each gesture that the nervous power is wanting to the limbs, just in the same way as it is wanting for the exercise of the faculties of the mind. It is in the young child only that mistakes are possible; care will avoid it here, and will preserve the little one from the mistaken orthopædic surgery, which, in spite of its brilliant results in suitable cases, would here be out of place—could here only worsen, could never benefit.

The paralysis of cerebral tubercle varies much in its characters, according to the seat of the deposit, and its size. In most cases its form is hemiplegic; it is often limited to the arm and hand, and invariably affects the upper more than the lower limbs. Its occurrence is usually

preceded by a convulsion; and this convulsion is limited to one side, often to one limb, the part convulsed at first being that which is afterwards paralysed. The convulsions which sometimes precede essential paralysis are always general, and hardly ever recur, and the loss of power is greatest at first, and afterwards lessens in some degree, even in those cases where no complete recovery takes place. The convulsions produced by cerebral tubercle, on the other hand, not seldom return, affecting the same limb, and leaving it after each recurrence more powerless than before. Moreover, there is often some degree, even though slight, of facial paralysis; the pupils of the two eyes are almost always unequally dilated, and there is, besides, usually a history of previous loss of flesh, of headache, or, at any rate, some symptom which would attract the notice of the attentive observer.

But there are also other cases, though very rare ones, where, owing, I imagine, to the central position of the tumour, the above-mentioned symptoms are not observed, but the signs of impaired power come on by degrees, and consist at first of an unsteadiness of gait

rather than of paraplegia, and resemble the characters of loco-motor ataxy more than those of actual disease of the brain. And yet I believe that even in such doubtful cases we may lay it down as a rule without exception that the continued presence of any one symptom of cerebral disease, be it habitual dilatation of the pupils, headache, or even causeless sickness, points unerringly to mischief in the brain.

I the less regret that I have left myself so little time to speak of what is commonly called the essential paralysis of infancy and childhood since I have nothing new to say with reference to it, nor any fresh theory to propound as to its nature. I prefer, in the present state of our knowledge, the term infantile paralysis to any other, because it commits us to nothing beyond the indisputable fact that this is the form of paralysis which occurs more frequently than any other in infancy and early childhood; and also because, in so far as my limited experience of the diseases of adult life enables me to judge, it does not occur in the grown person. I think that Duchennes' appellation of 'paralysie atrophique musculaire graisseuse' is unsuitable, for it predicates of all cases that which is true only

of some, and which, even when it does occur, does not take place at an uniform time, nor bear an uniform relation to the loss of power. Neither do I think that there is any adequate reason for separating cases into two classes, and regarding those in which recovery takes place speedily, and which some have called Kennedy's Paralysis, as essentially different from others in which recovery takes place slowly, partially, or not at all.

The characteristics of infantile paralysis appear to me to be—

1. The suddenness of its occurrence.

2. The absence in most cases of any previous sign of disorder of the cerebro-spinal system, and the fact that when such disorder does occur, there is no proportion between its severity and the extent or completeness of the paralysis.

3. The continuance of unimpaired sensation, and the absence of all rigidity or contraction of the paralysed limbs in the early stage of the affection.

4. The occasional existence of exaggerated sensibility in the early stage of the affection, and the direct proportion existing between it and the subsequent loss of power.

5. The tendency of the affection to assume the hemiplegic form in the first instance, though in the course of the subsequent improvement which almost always takes place, one limb (and that usually the upper extremity) often recovers either altogether or to a much greater degree than the other.

6. The direct relation which subsists between the early date at which improvement begins and its completeness.

7. The comparative rarity of *absolute* recovery even in the most favourable cases, for not only does a degree of weakness remain as the result of the shock, but in many instances one or two muscles of a limb, and those apparently arbitrarily selected, remain almost powerless, even when the others have regained much of their former vigour.

8. The tendency to retarded growth and impaired nutrition in the permanently paralysed limb, to which there is usually superadded a greater or less degree of fatty degeneration of the muscular tissue.

The wasting of the limb, however, does not bear an uniform relation to the degree of paralysis; nor even if the paralysis does not improve

is it continuously progressive, but remains stationary at an uncertain stage; as also does the degeneration of the muscular fibre.

9. The invariable tendency in all cases to the production of deformity in the affected limb, in occasioning which the mere weight of the limb, and the—for it disproportionate—load which it has to support or to move, bears, as Volckmann* has pointed out, a more important share than mere antagonism between the paralysed and non-paralysed muscles.

And here, Sir, I stop for to-day, having occupied your time with common things, everyday matters, such as some may consider fit only for the young student—beneath the dignity of this learned body. Pardon me, Sir, if it is so. We know the Eastern apologue which tells us how the dervish found that an old lame camel had crossed the desert, and how he learnt also the burden with which he was laden. The unequal footprints proved the camel lame; the scanty grass cropped unevenly showed the teeth worn with age; the grain found here, and the drippings from the gourd which held the honey on the other side, told the rest, and the story has for

* *Sammlung klinischer Vorträge*, Heft i. Leipzig, 1870.

ages served to point a nursery moral still worth remembering now our hair is gray. But, to pass from the region of fable to fact, I remember reading once how the elephant-hunters in Ceylon, when tracking that sagacious beast through his native forests—since, on account of his acute sense of smell, 'it is indispensable to go against the wind in approaching him—when the wind is so still that its direction cannot otherwise be discerned, will suspend the film of a gossamer to determine it, and shape their course accordingly.' And so, in the practice of our art, things which seem almost as slight as the gossamer film serve often to decide points of great moment; and the detection of the real nature of disease is as often, or even oftener, the result of minute, well-schooled observation as of acute reasoning or of great mental power.

LECTURE III.

DISORDER AND LOSS OF POWER OF SPEECH.—MENTAL AND MORAL PECULIARITIES AND THEIR DISORDERS.

Speech—the highest human power; its occasional tardy development.—Deaf- and dumbness.—Power of speech: in the idiot; in the backward child.—Stammering.—Affection of speech in course of chorea not always dependent on severity of muscular movements; associated with intellectual disorder; eventual recovery of such cases.—Other instances of loss of speech: after typhoid fever; after other ailments.—Rarity of abiding aphasia; case in illustration of it.—Imperfection of our knowledge concerning these cases.

Mental and moral peculiarities of childhood; importance of appreciating them.—Extent to which child lives in the present; need for sympathy in sick child; care in impressing on it religious dogmas.—Vividness of child's perceptions: dreams; ocular spectra; subjective sounds; night terrors; sleep-walking.—Intensity of child's sensibilities: heart-break; suicide of children.—Children's likes and dislikes, and their craving for sympathy.—Reasons for dwelling on moral rather than on intellectual peculiarities and disorders of childhood.—Difficulties of suffering of children insoluble except by Christian faith.

MR. PRESIDENT AND GENTLEMEN,—I find the subjects which I have undertaken grow upon my hands. It seemed to me, when first you honoured me with your commands, that the

difficulty would be to find any theme within the reach of my capacity which could be so drawn out as to occupy the hour; and now I find myself beginning the last lecture with the consciousness that much must remain unsaid that I should have wished to dwell on; and that I must select a small part only of what might well interest us in connection with disorders of the nervous system in childhood.

A portion of our time to-day I purpose to devote to the subject of the tardy development, the impairment, and the loss of the power of speech in childhood.

I select this subject, because as the power of speech is the highest endowment of our race, so all that concerns it, and its loss or its impairment, is of supreme interest to us, not as members of one common profession only, but as bound together by the ties of a common humanity.

'We cannot tell as yet what language is. It may be a production of Nature, a work of human art, or a divine gift. But, to whatever sphere it belongs, it would seem to stand unsurpassed —nay, unequalled in it—by anything else. If it be a production of Nature, it is her last and

crowning production, which she reserved for man alone. If it be a work of human art, it would seem to lift the human artist almost to the level of a divine creator. If it be the gift of God, it is God's greatest gift; for through it God spake to man, and man speaks to God in worship, prayer, and meditation.'

So says one of the most learned men of our day;* and it is in keeping with this highest estimate of what articulate speech is that we find the mother rejoicing over the first word her baby utters, more than over the appearance of the first tooth which pierces its gums, or than over its first successful attempt to stand alone. Each of these events makes the day a red-letter day; but the first time the child calls on its father or its mother is high festival in the little world of home. And, on the other hand, few things cause so much anxiety as when the time passes at which the infant usually begins to talk, and the mother waits on in mournful expectation for the sounds which are to prove her little one's right to full citizenship.

The date at which children begin to talk varies very greatly, and varies without its being

* Professor Max Müller.

possible, in many instances, to assign a reason for it. First children usually talk later than those born into a large family, for they have no little teachers to instruct them; while the fact that girls generally talk at an earlier age than boys is but an additional illustration of the greater intellectual quickness which the female child, especially in its earlier years, displays.

It by no means constantly follows, however, that tardy acquirement of the power of speech implies a deficiency of intelligence; so far is this from being the case that a very active intelligence often makes a child an excellent pantomimist, and its resources in this way render the exercise of speech superfluous to a later age than that to which it would have been deferred with a child of slower intellect. I have seen children between two and three years old who had not yet begun to speak, and have allayed their friends' anxiety by pointing out the little one's mimetic skill; and, by calling attention to the modulation of the tones of its voice, have removed their fear lest, though its intellect might be perfect, the child might yet be deaf and dumb.

It is not easy in early childhood to ascertain the existence of congenital deafness. Almost unconsciously nurse and parent accompany their words with signs, the child learns their meaning and obeys, not the sound which it does not hear, but the movements which it notices. The deafness isolates the child, however, and thus retards very considerably its mental development. The question, therefore, which usually comes before us is whether a child is dumb because it does not hear, or dumb because its intellect is deficient. The decision, too, is sometimes rendered still more difficult by the circumstance that the deafness may not be complete, the child perceiving loud sounds but not gentle tones; and in both cases—that of either complete or of partial deafness—the infirmity which cuts off the child from free commerce with others almost always renders it wayward, disobedient, and passionate, and gives rise to a causeless apprehension that the child is an idiot. Imperfect hearing, however, is now and then, though I believe but rarely, associated with imperfect intelligence. (Dr. Howe* observed it

* In his *Report upon Idiocy, &c., to the Senate of Massachusetts.* Boston, U.S., 1848.

only in 12 out of 574 idiots.) And when this is the case, the difficulty of determining how much of the child's peculiarities, and how much of its backwardness in speech depends on the one cause and how much on the other is greatly increased.

I mention all these difficulties, not because I have any special rules to lay down for their avoidance, but because they are often not recognised, and a hasty and erroneous opinion concerning a child's condition is expressed which a little care and patience would have avoided.

With the exception of cases of the lowest degree of idiocy, inability to talk and to use language for the expression of ideas is a rare attendant on that condition. Representing the skill of ordinary persons in the use of language by the figure 10, Dr. Howe estimates it at 5 in the idiot, while he estimates the reflective faculties at only 3·50. Ceaseless chatter is much more the characteristic of the idiot than difficulty of speech. He has more words than ideas, as Shakspeare knew when he spoke of

> 'A tale told by an idiot,
> Full of sound and fury, signifying nothing.'

But there is one class of children to be well distinguished from the idiot, to whom the power of speech comes late. These are the backward children, 'les enfants arriérés,' as the French call them; and it is concerning them that parents oftenest come to us for advice and comfort. Their history is sometimes that of having had convulsions soon after birth, or during dentition, and of the mental progress having been retarded since then, and the bodily progress too. Or else, without any special assignable cause, they have advanced but slowly; they noticed later than other children; they had no power to hold up their heads long after other children could support theirs; they were late before they could sit up, late before they could stand. At eighteen months or two years old such children do not attempt to talk, and their parents become very anxious about them, and fear that they will never talk at all. But such fears are needless; sooner or later almost every child who is not deaf will talk. Long before articulate speech begins, the voice shows by its modulations, if there be any intelligence at all, that the ear perceives sounds, while not infrequently a few simple musical

notes will awaken the evident attention of a child who would scarcely heed a complex tune.

In such cases if we find that the child, though far behind the ordinary attainments of its age, yet corresponds in its condition with what we might expect at an earlier period of life—that it grasps with its hands, for instance, carries objects to its mouth, notices light, or sound, or bright colours, or tries to stand, or, supported by the nurse, endeavours to walk, and expresses pleasure, or pain, or desire in tones variously modulated, though not articulate, we may give the assurance that speech will certainly follow. In such cases intelligence will improve to a degree which it is not possible to limit, but the animal endowments will almost certainly precede in their development the intellectual gifts; the child will probably walk long before it makes an attempt at talking.

But the power of speech once acquired may be impaired,—may be lost partially or altogether, and this either for a few hours, or days, or weeks; or once lost it may never be regained.

Before passing to graver affections of the power of speech I must say one word about

stammering. I never heard a very young child stammer. It may speak indistinctly, because it has not yet learnt to articulate all sounds; it simplifies them as it simplifies grammar, but it does not stammer. The children of the poor scarcely ever stammer; the infirmity is one which comes with self-consciousness, with mental culture, with the highly wrought nervous system. I never knew a child stammer before the commencement of the second dentition.

Stammering is to speech what chorea is to movement; and chorea is seldom dissociated at some period or other from imperfect speech. To a great degree, indeed, the imperfection of the speech is a gauge of the intensity of the chorea. Nor is there anything to wonder at in this. The muscles of deglutition are very often affected in severe chorea; the child swallows with difficulty, protrudes its tongue quickly, and for a moment only, and is quite unable to keep it protruded, and swallows its food in a succession of hasty gulps. The difficulty naturally extends to speech, for to a great extent the same muscles subserve both functions; while with the choreic child, just as with the stammerer, observation, or any cause howsoever trivial which

excites the child's emotions, aggravates its trouble.

But if this were all I have to say I should not be justified in occupying your time, Sir, and that of this learned audience with the repetition of commonplaces familiar to everyone. The power of speech, however, is sometimes affected in chorea in a degree quite out of proportion to the severity of the muscular movements generally, and it seems sometimes as if not only the power of articulation, but the memory of words for a time were gone.

Since the subject was first noticed by M. Marcé, the occurrence of temporary weakening of the mental faculties in the course of chorea has been recognised by practitioners of medicine, though by no means so generally as its importance demands. The impairment or the loss of speech in the course of the disorder is dependent almost or quite as much on affection of the mental powers as on disturbance of the organs of speech themselves.

Not long ago I had charge at the same time of two little girls, of eight and nine years of age respectively, both suffering from chorea, both, as a mere accident, staying in the same house,

though there was no relationship, nor even any acquaintance, existing between them.

In both the chorea was of some months' duration before they came under my care; in both it was severe, and neither child could walk without difficulty, even when supported, while all effort was followed by aggravation of the movements in both. In both the power of vocalization had been early affected, but while the one tried to speak, knew what she wished to say, but failed in the saying it because the disordered mechanism no longer obeyed the will, the other had lost the power of speech altogether. The one laboured hard to pronounce the words, and though we could not distinguish their meaning, various sounds were uttered, approaching more or less nearly to the sounds of the words which would have embodied the answers to the questions put to her. The other, if asked her name, said 'dah!' if her age, 'dah!' if she had had her dinner, still 'dah!' and she continued to do so at a time when her tongue was protruded steadily, when deglutition was well accomplished, and when the child had acquired command enough over her muscles to play with toys, to feed herself, and even to string beads.

It would have been interesting to have had a careful daily record of the steps by which speech came back. It came slowly at first, and 'papa,' the first word spoken, was but a little step from the old monosyllable 'dah!' and one which did not need a different play of the vocal organs; but after a week or so came other words, not similar in sound, and seeming as if chosen at haphazard, as though it were the drawing of a lottery, and prizes and blanks—important words, and words of little moment—came out by chance. When a small vocabulary had thus been gained, the key-note seemed to have been struck, and the whole melody recovered; not words only, but complete sentences were framed; forgotten memories came back again; and the little one no longer found difficulty in uttering all that she had to say.

Still more remarkable was the loss of speech and its return in a little girl, eight years old, who was received last summer into the Children's Hospital. Eight months before she had been attacked by chorea, produced by fright, and after the lapse of some months (one knows how vague are the statements of the uneducated poor) speech first became difficult, and then was lost altogether;

twitchings of the hands still continuing; not the violent jactitation of severe chorea, but such as was obvious enough when the child stood or walked, though it did not interfere either with standing or walking.

For some weeks before she came into the hospital the child uttered no words except 'yes' or 'no,' and was unable to protrude her tongue, but did as little children do who have never learnt the lesson how to do it, and applied the tip of her tongue to the inside of her lower teeth. She was able to swallow perfectly.

While in the hospital the child seemed happy; she attached herself to her nurse, and played with her toys, but the whole month long she said no more than 'yes' or 'no,' and could never be induced to protrude her tongue.

At the end of this time she was sent to the Convalescent Hospital at Highgate, and for the first ten days there was no sign of improvement in her condition. At the end of nine weeks, however, she left Highgate, not quite free from twitching, and paler than a child should be in perfect health, but speaking with fluency.

When the child first went to Highgate, promises of reward if she would endeavour to

speak produced for a time no effect. As she had learnt to read, however, she was at length induced to make the attempt to read to the nurse. At first she did it so indistinctly and in a tone of voice so low as to be almost inaudible, and quite incomprehensible; but the nurse made as though she understood her. Thus encouraged, the powers of speech improved; and here and there in each sentence a word was distinctly uttered; and then, as in the other case, all came back again rapidly, and the child once more talked as she had done before her illness, though some degree of choreic movement was still present.

Cases such as these are worth remembering, for they enable us at once to dissipate much needless anxiety, and to assure the children's friends that the mind, though weakened for a time, will regain its former powers, and that the lost gift of speech will certainly be recovered. It is, however, after fever and other protracted illnesses that such anxiety is oftenest felt, and that our positive assurances of recovery have to be most frequently repeated. And repeated they may be almost unhesitatingly, for I have only twice known the assurance to be falsified.

In one of these cases hearing was lost, though not as the result of any obvious disease of the ear; but the patient, a boy of eight years old, was found, after a severe attack of typhoid fever, to be stone deaf; and speech was lost by degrees, because the accustomed sounds were entirely unheard, and the lesson, like many a lesson of childhood, was forgotten for want of repetition. I advised the child to be placed under the care of an instructor of the deaf and dumb, but as he came from a remote part of Scotland, I do not know whether his condition, which had already existed a year when I saw him, became much ameliorated.

In the other case the loss of speech took place in different circumstances, and was a part only of the result of shock caused by fever, and which disordered hopelessly some of the mental powers, while others it left untouched.

A healthy boy, a farmer's son, was attacked by typhoid fever, which, though severe, was unattended by any very special disorder of the brain, when ten years old, in November 1859. He was taken to Brighton in January 1860, and as he slowly regained his strength his manner became strange; he talked irrationally,

and at length he would not dress himself, nor would he take any food. His refusal to take food reduced him to a state of extreme weakness, and in April 1860 he was brought to the Children's Hospital. He was much emaciated; his manner was sullen; but as his mother left the ward he exclaimed, 'Don't leave me, mother!' and from that time to the present he has never uttered another word. At first he was fed forcibly; after a time he allowed himself to be fed without resistance, and in the course of years has resumed the habit of feeding himself with a spoon, though he will not use a knife and fork. He would not dress himself for many years; but by degrees, as he grew older, a sense of decency apparently has led him partly to dress himself: he puts on his shirt and trousers, he washes himself, but never dresses himself completely. He looks after the poultry and pigs, harnesses the horse and drives his mother to market, imitates the sounds of animals, laughs if any ludicrous occurrence happens, or even if some stories are told which amuse him. I said to him a year ago, 'If you won't talk you will never get married, for you must ask the young woman, or she certainly will not

have you.' He seemed highly amused, and laughed heartily; but he still observes the same silence. Sometimes, indeed, he is morose in manner, but usually tractable; and one would fancy, but for the years during which this silence has lasted, that it was but the vagary of a wayward fancy, and that some sudden surprise or keen emotion would awaken his utterance again.

I do not know where to class this case; whether with the mutism of the insane, to which it seems rather to belong, or with the special loss of the power of articulate speech which, within the last few years, has been the subject of such careful investigation. One case, and but one, of aphasia, such as Trousseau describes it in the grown person, has come under my notice, and this, on account of its rarity, I will presently relate. But it has happened to me now and then to observe temporary loss of speech follow on the cure of some comparatively trivial local ailment, such loss being accompanied with more or less disorder of the nervous system, and the subsidence of the latter preceding somewhat the return of the former.

A girl, seven years old, who had often suffered

from eczema, and since the age of three had been liable to attacks of strumous ophthalmia, any considerable improvement in which was always attended with a deterioration of her general health, was affected with fever, excessive restlessness and irritability, with loss of power of speech ten days after complete recovery from ophthalmia. This state continued for three weeks, when the child began to mend, and was discharged convalescent from the hospital in 64 days. The attack set in with headache, and on the next day the child was mute, though she understood questions and did as she was bid, and swallowed perfectly well. From time to time she moaned as if in pain; her general condition seemed one of extreme depression; sordes collecting on her teeth and lips: and now and then she refused, rather than seemed unable, to swallow. During this time her temperature varied without obvious cause, rising to 103°, sinking for short periods even down to 91°; strange signs of disorder of the nervous system occasionally showed themselves: the muscles of the face sometimes twitched, the body arched slightly backwards; but at the same time, though the child grew thinner, there was no extreme ema-

ciation. About the 19th day she appeared quieter and more attentive to external circumstances; and four days later, when spoken to, she shaped her lips as if to reply, but, with a pained expression of face, kept silence still. On the 28th day her mother came to see her: she knew her, tried to talk, but no sound came. She seemed much distressed, and, for the first time since her illness began, she shed tears. On the 30th she spoke short sentences, screaming them out passionately, with no modulation in her tones, and as though she had no patience to wait for her wants and wishes to be attended to. On the 36th day she had recovered strength enough to stand if supported, and to try to walk, lifting her legs in doing so as if walking upstairs. Slowly all these peculiarities subsided, and on the 64th day she was discharged well, but with slight dragging of her left leg.

A year afterwards she returned to the hospital suffering from a return of eczema of the ears and strumous ophthalmia, from which, however, she recovered, with no return of nervous symptoms of any sort.

Cases of this kind are, on the whole, so unusual, and have been so little noticed, that I will

very briefly relate one more history—that of a little girl, 6½ years old, who, while in her ordinary health, had a small superficial strumous sore form on her left cheek, and this was accompanied with a little swelling behind the ear. At the end of three months the sore somewhat suddenly healed, and a few days afterwards she lost her appetite, became dull and heavy, and complained of pain at the back of her head. At the end of a week she took to her bed; in another week she ceased to speak, though she recognised her friends; and had been speechless for a week when she was brought to the hospital. She was then in a state of great excitement, shrieking aloud frequently, though not speaking; and with a frequent and feeble pulse, and much dilated pupils. An opiate in no measure quieted her. During the next three days her excitement by degrees diminished, and her consciousness increased; though her pupils remained dilated, her nights restless, with occasional outcries; and she seemed painfully alive to her inability to speak. I found her, on the fourth day after her admission, sitting up in bed, playing with a doll. I spoke to her; she gazed at me most wistfully, opened her

mouth, but no sound came, only a loud unintelligible cry; her face was drawn as if she were going to weep, but she could not; and she threw herself down upon her pillow, her countenance half vacant, half despairing. The next day the same state continued; the effort to speak seemed still more resolute, but still no speech, still the same agony at failure. On the seventh day, after a restless night, speech came back all at once—the words sometimes misplaced or wrong—but her utterance voluble, and she never talked nonsense. It was like a little bird learning a song again. On the ninth day some childish disappointment was followed by a genuine fit of crying, and from that hour she was herself again, and her face when I next saw her was all radiant with happiness.

I heard of her a year after, and she was still well.

I have seen but one case of aphasia in the child obviously connected with cerebral affection, and where the loss of speech was of long duration, if I except the lad whose history I have already related. This case occurred in a little girl, five years old, who had sun-stroke, followed by coma of a fortnight's duration, and

attended with hemiplegia of the right side, and with loss of speech. The right leg, to a great degree, recovered power, and the facial paralysis disappeared in a few weeks, but the right arm remained quite powerless, and the fingers firmly clenched into the palm for a long time. The intellect was perfect, and the child was tractable and good-tempered, but could not speak. Her only sound in answer to every question was 'dah.' In three months she learned to say 'here' and 'oh,' but '*here*' cost her a great effort, and often, in spite of all her efforts, she would fail, and say 'oh' or 'dah' instead. At the end of four months her mother announced with great glee that her little one could chant a line or two of some nursery songs, but all she did was to modulate the tone in which she sang the same old monosyllable 'dah.'

At the end of a year all trace of facial paralysis had disappeared, the right leg was a little weaker than the left, but that was all; the power over the right arm was still very imperfect, and the fingers, though they could be partially extended, were still drawn habitually into the palm.

Her mother pleased herself again with the

idea that speech was returning, though the sounds she uttered when asked the names of things seemed to be mere modulated tones, and not articulate words. Now and then she did imitate words uttered by another person, but even then she did it very imperfectly, and often did not succeed in the attempt at all.

A fortnight since, another year from her attack, I saw the little one again. She had grown, looked healthy and intelligent. She went to school, had learnt to sew, though her right hand, still partially paralyzed, interfered with her dexterity. She had acquired a small vocabulary; said 'yes,' 'no,' 'father,' 'mother,' 'brother,' 'sister,' and uttered some other simple words correctly. Many others she could repeat after another person, but often failed to use them correctly, saying one for the other, and not seeming aware of her mistake, nor distressed when it was pointed out to her.

I relate the case very much because hers is the earliest age at which, as far as I know, aphasia, accompanied with paralysis of the right side, has been recorded.

My concern, however, is more with cases of temporary loss of the power of speech, and with

illustrating their greater frequency in the child than in the adult.

I do not pretend to know what happens in these cases. I have no theory about it. The power is lost absolutely for a time; it returns completely—just as the old traveller Mandeville tells us of a country where the winters are so severe that the words freeze upon people's lips, and half the long year it is a realm of silence; but with returning spring, the congealed sounds are unlocked again, and all is vocal with 'airy tongues that syllable men's names.'

And we may, to the unspeakable comfort of our patients' friends, assure them of the complete return of the power of speech in these cases of its sudden loss in childhood, of its independence of any grave disorder of the intellectual powers; in short, we may promise them that the silent winter will most certainly be succeeded by a voiceful spring.

But, it may still be urged, is there indeed no theory by which we may be better helped to the understanding of this state of temporary aphasia? I know of none, and it is therefore that I shrink from the use of scientific phraseology, which *seems* to explain, but which in

reality pays us only with words that do not represent distinct ideas. Such phraseology is like Fairy money—it seems, but is not; it glistens like the ruddy gold, and in the moonlight of imperfect knowledge it appears to us a treasure, but it vanishes with the dawn, or is found by those who look at it in broad daylight to be but dross. Scientific terms are but counters at the best; they may perhaps be serviceable to mark with, but they are worse than valueless if we try to pass them as if they were current coin.

It still remains to say a few words about the mind and its disorders in childhood, a subject which might fill a big book, and your Lecturer

'Aestuat infelix, angusto in limite.'

The mental and moral peculiarities of childhood engage far less than they deserve the attention of most practitioners of medicine, and hence it comes that the treatment of the disorders of early life is to so large a degree a matter of unintelligible routine.

The strongly-marked individuality of the adult forces itself on the notice even of the

least observant. The cares which oppress him, the misfortunes which have soured his temper, the anxieties to which he is looking forward in the future, the ambition which renders him unquiet, or the selfishness which leads him to wrap himself up in his own sensations, to study, —generally to exaggerate his ailments—are borne in mind, and modify the conduct of all who are at all fit to practise our profession. In the case of children, however, individuality is far less marked, and hence the mental and moral peculiarities of the state of childhood are little thought of; and the child is treated as though he were in mind, as well as in body, a miniature man, feebler in intellect, as he is smaller in strength, but differing in degree only, not in kind. Now the child differs essentially from the adult in these respects; that

1st He lives in the present, not in the future.

2nd His perceptions are more vivid, and his sensibilities more acute, while the world on which he has just entered surrounds him with daily novelties.

3rd He has less self-consciousness, less self-dependence, lives as a part of the world by which he is surrounded—a real practical pantheist.

The child lives in the present, not in the future, nor much even in the past, till the world has been sometime with him, and he by degrees shares the common heritage of retrospect and anticipation. This is the great secret of the quiet happiness which strikes almost all visitors to a children's hospital.

No one can have watched the sick bed of the child without remarking the almost unvarying patience with which its illness is borne, and the extremity of peril from which, apparently in consequence of that patience, a complete recovery takes place. Much, indeed, is no doubt due to the activity of the reparative powers in early life, but much also to the unruffled quiet of the mind. No sorrow for the past, no gloomy foreboding of the future, no remorse, disappointment, nor anxiety depresses the spirits and enfeebles the vital powers. The prospect of death, even when its approach is realised—and this is not so rare as some may imagine—brings in general but small alarm. This may be from

the vagueness of the child's ideas; it may be, as the poet says, that in his short life's journey 'the heaven that lies about us in our infancy' has been so much with him that he recognises more clearly than we can do

> 'the glories he hath known,
> And that imperial palace whence he came.'

I dwell on this truth because it is of great practical moment that we should bear in mind to how very large an extent the child lives only in the present; because it follows from it that to keep the sick child happy, to remove from it all avoidable causes of alarm, of suffering, of discomfort—to modify our treatment so as to escape a possible struggle with its waywardness, and even if death seems likely to occur, to look at it from a child's point of view—not from that which our larger understanding of good and evil suggests to our minds—are duties of the gravest kind, which weigh on the physician, on the parent, on the nurse, and which it behoves us none the less to remember because they are not dwelt on in the lecture-room, or in the medical treatise.

One word, and but one, I would add here,

and I trust I may do so without incurring the suspicion of want of respect for religion, or of want of faith in its doctrines. Some of the most painful death-beds which I have ever witnessed have been those of children whose over-anxious friends have striven to force upon their minds the deepest verities of our faith, in that definite form in which they are embodied in catechisms and formularies. It is easier to frighten than to console;—the dark grave is realised, or, at least, imagined more vividly than its conqueror; and the little child, driven to look within for the evil which it does not know, and cannot find, but vaguely dreads, and would be sorry for if it knew it, has moved me to compassion only less than that I felt for its broken-hearted torturers, who have failed to learn that the little children —of whom our Saviour said that of such was his kingdom—were not called on to recite any creed, to profess any faith; but, just as they were in their helpless ignorance, were deemed fit to be folded in his embrace, and to be held up to us as our example.

But not only does the child live in the present far more than it is possible for the adult, but there are, besides, other important mental

differences between the two. Not merely is the mind of the child feebler in all respects than that of the adult, but, in proportion to the feebleness of his reasoning power, there is an exaggerated activity of his perceptive faculties, a vividness of his imagination. The child lives at first in the external world, as if it were but a part of himself, or he a part of it, and the glad-heartedness which it rejoices us to see is as much a consequence of the vividness with which he realises the things around him as of that absence of care to which it is often attributed. This peculiarity shows itself in the dreams of childhood, which exceed in the distinctness of their images those which come in later life, and shows itself, too, in the frequency with which, even when awake, the active organs perceive unreal sounds, or, in the dark at night, conjure up ocular spectra; and these not merely colours, but distinct shapes which pass in long procession before the eyes. This power fades away with advancing life, except under some conditions of disease, the occasional appearance of luminous objects in the dark remaining the only relic of this gift of seeing visions, with which, in some slight degree at least, most of us were endowed

in our early years. The child who dreads to be alone, and asserts that he hears sounds or perceives objects, is not expressing merely a vague apprehension of some unknown danger, but often tells a literal truth. The sounds have been heard; in the stillness of its nursery the little one has listened to what seemed a voice calling it; or, in the dark, phantasms have risen before its eyes, and the agony of terror with which it calls for a light or begs for its mother's presence, betrays an impression far too real to be explained away, or to be met by hard words or by unkind treatment.

Impressions such as these are not uncommon in childhood, even during health. Disorder, direct or indirect, of the cerebral functions, more commonly the latter, greatly exaggerates them; and I have known them both to outlast for many weeks all other signs of ailing health after convalescence from fever. The unreal sights are far more frequent than the sounds. The sounds are usually of the simplest kind—as the tinkling of a bell, of which we all remember the exquisite use made by Hans Andersen in one of his nursery tales; or the child's own name at intervals repeated, just as the little watchful

boy heard it in far-off Judæa, when it was the prelude to a wondrous communication from the unseen world. It came to him as he woke from sleep, before the early morning dawned, while the lamp, lighted over night, was burning still; and still it is so far the same that these occurrences which suggest to us problems that we cannot attempt to solve, mostly take place at times of transition from the sleeping to the waking state.

The ocular spectra are usually far more vivid and detailed. Those which occur in the waking state are by no means always painful, though their strangeness not infrequently alarms the child, and his horror of the dark is due not to his seeing nothing, but to his seeing too much.

Some imaginative children amuse themselves with these phantasms, and then, if encouraged to relate them, will constantly transgress the boundary line between truth and falsehood, and weave their little romance. When they happen on waking they are usually preceded by frightful dreams, but the image which the child sees then is not the mere recollection of the dream, but a new distinct, though painful impression,

generally of some animal, to which the child points as now here, now there. These night terrors, from the very circumstantial character of the hallucinations which attend them, often occasion needless anxiety as to the importance of the cause on which they depend.

Sleep-walking, in its smaller degrees of getting out of bed at night, is by no means unusual in childhood; but the greater degrees of somnambulism are certainly rare; and I have always found them dependent on undue mental work: not always, indeed, on the tasks being excessive, but sometimes on the over-anxiety of the child to make progress. I have not yet known a poor person's child a somnambulist.

But, not only are the perceptions more acute in childhood than in adult life, but the sensibilities are more intense. The child's emotions, indeed, are often transitory—generally, indeed, very transitory; but while they last they produce results far greater than in the grown person. In the case of the latter, recollection of the past, anticipation of the future, or even the duties of the present, control the overwhelming sorrow, or call forth the energies needed to bear it. The child lives in the

present, and this present is but the reflection of the world around, its impressions uncontrolled by experience, ungoverned by reason.

The broken-heartedness of a child on leaving home is not the expression only of intense affection for its friends or relations; it is the shock of separation from the familiar objects which have surrounded it; and I have not infrequently seen children inconsolable when removed from homes that were most wretched, or from relations who were most unkind. Every now and then, indeed, we are compelled to send children back from the hospital because no love nor care can reconcile them to the change from home; and they have refused to eat, and spent their nights in weeping. The feeling is an unreasoning one, like the home-sickness of the mountaineer.

I remember a little girl, ten years old, who was received into the Hospital for Sick Children with diabetes in an early stage, with slight indications of tubercular mischief about the apex of the left lung, but who was not passing any very excessive quantity of urine. She was sad and somewhat listless for the first two days of being in the hospital. On the third day her

friends visited her. Their visit greatly excited her, and when they left depression followed the previous excitement: she became sick, and vomited several times, her pulse rose to 150, her skin was cold, sordes collected around her teeth, and she lay calling for her mother. On the fourth day she vomited in the morning dark, coffee-ground like fluid, but did not seem either better or worse in other respects than on the previous day. Her mother came to her, and her presence seemed to be a comfort to the child, as shown by signs rather than by words. The same afternoon she was taken home, a distance of four miles, and seemed no worse for the short journey. She never rallied, however, but gradually sank, and the next afternoon she died.

It may be said that in this case the child was afflicted with a grave disease, though not in a far advanced stage; and that, therefore, the shock of removal from home produced an effect on her which otherwise it would not have occasioned.

But sudden shock may sometimes overthrow the whole moral equilibrium, and disarrange the balance of the nervous system so seriously as to

cause the death of a child previously free from any important ailment.

A little boy, five years old, whose health had previously been delicate, was taken on Oct. 23 to his father's funeral. There had never been any special tie between his father and himself, but the strange sad scene overcame him: he shivered violently, became very sick, complained by signs of pain in the head, but had lost the power of speech, and was unable to protrude his tongue. He was brought home, and lay listless and indifferent to surrounding objects all day, but resting in the night, able to swallow, but refusing food. On the third day he was admitted into the Children's Hospital, when his expression was dull; his pupils were unnaturally dilated; he could not close his right eye; his mouth was drawn to the left side, and the saliva dribbled from his mouth; power over the right arm was impaired, and the head was drawn to the left side. These symptoms did not persist; power over the right side returned by degrees, as did the power of speech, and that of protruding his tongue; but no corresponding improvement took place in his general condition. On October 28 he had for a few

hours a gleam of cheerfulness, sat up, and played with toys, but this soon passed away. His days were spent in a drowsy, apathetic condition, varied only by calls for his mother, which did not always cease even when she was by his side; and the nights were, without exception, restless and excited. On November 3 convulsions occurred, and they were followed by deep drowsiness. The drowsiness deepened, the convulsions from time to time returned, and early on November 7 he died, just sixteen days after his father's funeral. A little fluid in the ventricles of the brain, a little congestion of its vessels, was all that the anatomist could find. I suppose his mother was right: she said his heart was broken.

It behoves us to bear in mind that the heart may break, or the reason fail, under causes that seem to us quite insufficient; that the griefs of childhood may be, in proportion to the child's power of bearing them, as overwhelming as those which break the strong man down. In France, during the ten years from 1835 to 1844, 134 children between the ages of five and fifteen committed suicide, or, on the average, nineteen every year.

'In the greater number of the instances,' says M. Durand-Fardel,* to whose researches I am indebted for the figures I have just quoted, 'in which the cause of the suicide is mentioned, one sees that they have killed themselves in consequence of punishment, or of reproofs, or of ill-usage. These facts deserve special attention; they prove how much more the susceptibility and sensitiveness of children need to be taken into consideration than is commonly done.'

This keenness of the emotions in children displays itself in other ways, and has constantly to be borne in mind in our management of them. The child loves intensely, or dislikes strongly; craves most earnestly for sympathy, clings most tenaciously to the stronger, better, higher around it, or to what it fancies so, or shrinks in often causeless but unconquerable dread from things or persons that have made on it an unpleasant impression. Reason as yet does not govern its caprices, nor the more intelligent selfishness of later years hinder their manifestation. The waywardness of the most wilful

* *Étude sur le Suicide chez les Enfants;* in *Annales médico-psychologiques.*

child is determined by some cause near at hand; and he who loves children, and can read their thoughts, will not in general be long in discovering their motives, and seeing through their conduct.

One word more I have to say with reference to that intense craving for sympathy so characteristic of the child. It is this which often underlies the disposition to exaggerate its ailments, or even to feign such as do not exist, and in such attempts at deception it often persists with almost incredible resolution. Over and over again I have met with instances, both in private and in hospital practice, where the motives to such deception were neither the increase of comfort nor the gratification of mere indolence, but the monopolizing the love and sympathy which during some bygone illness had been extended to it, and which it could not bear to share again with its brothers and sisters. This feeling, too, sometimes becomes quite uncontrollable, and the child then needs as much care and judicious management, both bodily and mental, to bring it back to health, as would be called for in the case of some adult hypochondriac or monomaniac.

A caution may not be out of place as to the importance of not ministering to this tendency to exaggerated self-consciousness by talking of children's ailments in their hearing, or by seeming to notice the complaints they make, as though they were something unusual or out of the common way.

It probably has occurred to those who have done me the honour of listening to me, that in speaking of the affections of the mind in childhood I have referred more to disorder of the moral faculties than of the intellectual powers; and I have done so because I believe them to be the more common, and the more important, if we leave out of consideration—as for want of time we are compelled to do—the cases in which idiocy or mental weakness is congenital, and the child has never been able to claim its place in the scale of being. But the moral element seems to me to assert its superiority in this, that it is the most keenly sensitive, the soonest disordered—

'Like sweet bells jangled out of tune and harsh,'

and the discord is first perceived in the finest notes.

But some may say this is no more than we should expect. Cases such as these do but resemble in the moral world what in the physical we are familiar with as instances of atavism: the qualities induced by culture, by the upward striving of the artificial man, are those first shaken, first abolished; the ungovernable selfishness, the uncontrollable temper, the violent passion which disease develops, do but point to the parent stock, from which we are separated only by centuries of training, and which the identity of the *hippocampus minor* in man and monkey proves beyond a doubt.

But what, if in proportion to our sympathy with these so-called accidental, adventitious qualities, is our success in the treatment of disease, and especially of such diseases as present themselves in the simplest, least complicated forms amongst the youngest of our race?

'Nihil humani a me alienum puto,' said the Roman, in words which have been quoted till they have sunk to be a schoolboy's theme; but these words are to be used no longer; it seems we have read our lesson wrong, man's genealogy is not what we thought—

'Os homini sublime dedit
Et erectos ad sidera tollere vultus,'

was a mistake of the old pagan. God made us not in His image, nor formed us in His likeness; we are no heirs of immortality, redeemed by no Atonement; but from time to time we may learn, I know not whether humility or pride, from a visit to a lineal descendant of our ancestor in the Zoological Gardens.

Pardon me, Sir, I should be sorry to transgress the rules which govern the topics I have a right to refer to here, but I shall probably never again have the opportunity of expressing before an audience like this what I understand as *religio medici*; and of making the confession of faith of one who for many years has been engaged in the active practice of our profession.

I have lived among children, I have loved them as we all learn to love the objects by which we are daily surrounded. I have seen their suffering and sorrow, and no explanation but one could ever in any degree solve the problem which it suggests. I have found it in the belief that He whom an old book speaks of

as the Holy Child Jesus allows the young children, 'whom in Palestine he had blessed, once and for ever, to pass through this, only that they might meet the sooner.' The mystery of the suffering, indeed, is still in large measure incomprehensible, but an end is seen to it all; not the extinction of the weak for the sake of the strong, themselves to yield in turn to the stronger; the race being all, the individual nothing, but the perfection of each individual of the race;—a perfection to be attained not here, but higher.

The last words of the gospel of the dreary creed to which I have referred, written by one whose intellectual gifts go far, whose moral excellences go further still to disprove his own theories, and before whom, in both respects, I bow in earnest admiration, are, 'Man still bears in his bodily frame the indelible stamp of his lowly origin.'

So be it, but we find it also written, 'The Lord God breathed into his nostrils the breath of life, and man became a living soul.'

The humility of our origin we allow, the exceeding bitter cry of tortured humanity we above all other men have to listen to, but to

our joy we know the prayer, and we believe it has been answered:

'*O Dux domûs Israel, O Rex gentium, et Desideratus earum, veni et salva hominem quem de limo formâsti!*'

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